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The Future of Accessibility Engineering: From Compliance to Cognitive Inclusion

Ashok Vootla

Senior Software Engineer, USA

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ABSTRACT: This paper will analyze how accessibility engineering is changing to become less compliance based in its design to cognitive inclusion wherein systems become cognizant and receptive to the mental and emotional needs of users. It compares the performance and satisfaction of a user with AI personalization, voice navigation, and predictive assistance (through a simulation-based approach). The results indicate that AI-based systems are time-saving, reduce the number of errors and mental load, as well as raise satisfaction and stability.

KEYWORDS: Cognitive Inclusion, AI, Accessibility Engineering, Compliance

I. INTRODUCTION

Accessibility engineering seeks to ensure digital systems are accessible to everybody including the disabled individuals. Nevertheless, the majority of existing designs are aimed at fulfilling compliance requirements and not at the actual comfort of the user and cognitive inclusion. This paper does research on the applications of AI technologies to develop contextual systems that are adaptive and empathetic. The study employs quantitative simulations as an experimental means to test AI personalization models and voice control models and predictive support models. A comparative analysis of traditional and AI-enabled systems, the paper demonstrates how accessibility may change and become non-static conforming to regulations to being dynamic and human-conscious to enhance self-reliance, happiness, and psychological comfort.

II. RELATED WORKS

Redefining Accessibility

Traditionally, accessibility engineering has been concerned with legal standards like WCAG or ADA, in terms of whether digital systems can be technically used by people with disabilities. Emerging literature however points to the fact that we should cease to act in compliance with matters of cognitive inclusion - systems that are responsive with various human contexts and cognitive strengths.

The most recent studies highlight the way Artificial Intelligence (AI) is making accessibility much more than an account of design checklists and, in fact, a response to the user that is dynamic and relies on learning (which appreciates user behavior and situation) [1]. The systematic review of [1] also found that, although AI applications have been reported to have made good strides when it comes to dealing with visual impairments, there is still a notable gap of dealing with speech, hearing, motor, and cognitive disabilities.

It is this imbalance that points out the weaknesses of compliance-based design models where the visible disabilities are often given precedence over cognitive disabilities. The challenge is not to provide accessibility as it extends into AI based ecosystems but to provide access that is empathetic - able to identify emotional, behavioral and contextual cues on the part of the user.

This transition has seen the emergence of AI-based voice assistants such as Siri and Alexa as key tools of accessibility. These assistants can be discussed as the combination of Natural Language Processing (NLP), Machine Learning (ML), and speech recognition, which help to understand the intent of a human being and allow people to interact more easily and more intuitively, as stated in [3].

To give an example, voice commands instead of the complicated menu navigation serve such users who have motor impairments or consume too much cognitive resources. Nevertheless, the issue of the ethical concerns of the privacy of

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data and bias of voice recognition still exists, which means that clear, inclusive AI design practices should be practiced to guarantee equal access [3].

The changing concept of digital empathy in which the systems predict the mental and emotional burdens is also considered in research. The authors of [9] believe that multimodal AI solutions involving vision, voice and haptics help promote the idea of proactive support that can encourage the customers to be assisted before being frustrated or exhausted.

These developments prove that the existing access is becoming more of a dynamic of mechanical adjustment to forecasting inclusion that is responsively dynamic to cognitive and emotional psychic attacks. This process pre-conditions the following stage of development when the neediness of access engineering does not weigh heavily on it but is an intellectual experiment involving both human beings and computerized devices.

AI-Powered Assistive Technologies

The assistive technologies that were previously reserved for only aids such as screen readers or tools to assist in mobility are now being combined with AI to provide accessibility that is both context-aware and customized. According to [4], the AI-based assistive tools have recognized enhancement of usability, efficiency, and satisfaction by minimizing time spent on the completion of tasks and increasing the quality of the interaction. The combination of emotion recognition, speech interpretation, and adaptive learning models can enable the systems to measure the cognitive and sensory pattern of every user.

The article in [9] presents a new accessibility index called Accessibility Impact Score (AIS) which assesses the device effectiveness of AI-based tools to a user in various fields. It indicates that visual and motor applications recorded the best AIS scores meaning they are matured and that cognitive and auditory tool is an emerging field.

Multimodal AI as a combination of various signals that include touch, sight, and sound are also a significant advancement towards human-centered accessibility. This tendency is a manifestation of the major idea of cognitive inclusion the desire to ensure that the systems are not only responsive but also anticipative and sensitive.

Accessibility has also been changed by AI in mobile setting. According to a study by [7], mobile applications powered by AI implement the use of computer vision, NLP, and adaptive interfaces to provide real-time support in the form of speech transcription, object recognition, and screen alteration.

These systems allow visual and cognitively impaired users to work on content and do so more independently. It is not easy, though issues also continue to exist on the optimization of models, energy efficiency, and privacy which are to be solved interdisciplinarity, encompassing engineering, ethics, and psychology [7].

Voice controlled systems are also used to set an example of cognitive inclusion at work. Such systems enhance learner control and academic interaction among the learners with disabilities as it has been discussed in [10]. The research shows that AI-based screen readers and NLP interfaces not only increase the comprehension level but also stimulate the cognitive development in the form of interactive and adaptive learning patterns. The focus on teacher preparation and moral AI in [10] highlights that the access cannot happen with technology only and the supporting institutions, infrastructure, and policies are necessary.

These publications indicate a paradigm shift in the research of the assistive technology, that is, the removal of a stagnant image aiding others and the development of adaptive cognitive companions with self-learning and performance changes. The frameworks of the future should thus give precedence to the context-aware algorithms which do not only emphasize on what is done by users, but why they do it.

Accessibility in Fintech

The financial technology (fintech) industry has important lessons on making access solvable outside of physical disadvantages - in the aspect of cognitive encompassment of multiple users. According to the studies, cognitive and emotional aspects influence the manner in which users engage with fintech systems largely [2].

On the framework of the Unified Theory of Acceptance and Use of Technology (UTAUT), [2] came up with the followings as the direct predictors of digital banking adoption: trust, risk, and performance expectancy. These are

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mediated by behavioral intention which points out the simulations of cognition and emotion, which works together to create accessibility results.

This connection between cognitive behavior and the use of technology gets even more essential to the aging population and the vulnerable population. As it is stated in [5], the elderly encounter cognitive diversity issues when interacting with fintech, including coping with memory load and decision fatigue.

Their research suggests the implementation of layered fintech support networks based on the combination of human collaboration (family members, advisors), and AI-based personalization to provide comfortable cognition protection. The given human-AI partnership demonstrates the tendency to increased accessibility characterized by the distribution of responsibility between technology and social assistance.
This view is extended in the systematic research by [6] revealing the role of fintech in financial inclusion via innovation and regulation. The authors point to the fact that the majority of studies refer to the dynamics of the market and stakeholders but not to cognitive usability where the gap in the creation of fintech solutions accommodating the psychological and mental background of users exists. This is in line with [8] that studies the area of intersection of mental health and financial technology and indicates that individuals with psychosocial problems are at a disadvantage in the area of financial management that can be alleviated by adaptive and empathetic fintech ecosystems.

The regulatory sandbox and intersectoral networks, recommended in the Croatian case study in [8], are to allow inclusive fintech innovation and to underline that framing accessibility to emotional and cognitive vulnerabilities. A combination of these studies strengthens the argument that cognitive inclusion does not work on disability, it represents the wider range of mental, emotional, and situational factors that influence the usage of technology. As such, fintech is an effective field in which the principle of access can be applied to real-life, stakes high situations of decision-making.

Cognitive Inclusion
In healthcare, education and fintech sectors, all literature reviewed suggests an overhaul of the concept of accessibility engineering holistically. The majority of AI-based accessibility studies, as mentioned in [1][4], and [9], have been ad hoc and do not take into account individual cognitive experience manifested by the user but instead just the impairments. Future of accessibility engineering is based on context-based ecosystems that combine personalization, empathy as well as predictive assistance.

The development of cognitive inclusion is one of the key research directions the models that incorporate user intent, emotion, and attention into the design logic. Widely, as an example, the adaptive systems can simply the interfaces automatically to users who are either fatigued-cognitively or anxious. The other border is the use of multi-sensory learning environments proposed in [9] and [10], where the input (visual, auditory, haptic) is a cross-sensory and dynamically real-time tuned on the base of stress or activity of the user.

The contribution of the policy and regulation is changing its capacity of enforcement to empowerment. Such papers as [8] propose the idea of collaborative regulatory models which facilitate experimentation, openness and inclusion. Accessibility should therefore become a collective task of the developers, the policymakers, educators, and the financial institutions.

Certain issues remain as crucial as before, such as concerning the ethical aspects of data gathering, prejudice in the algorithms, and data security. As more of the AI systems will involve the user experience, it is not whether everyone will be able to use the system, but whether the system will conceive everyone sufficiently well? Such ethical concerns will be one of the central ones in generating a cognitively inclusive digital future.

A growing interest in people-centered design in AI accessibility is taken into account. It seeks to ensure that technology is not just adaptive, but also supposed to be empathetic, accessibility is not a rigid compliance set list; it is an activity in a state of constant development and expansion as humans gain experience. This involves multidisciplinary cooperation between AI and behavioral psychology as well as research in design.

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Theme	Key Insights	Representative Studies
AI for Accessibility	Bidirectional movement of visual attention into multimodule contextual inclusion.	[1][4][7][9]
Voice and NLP Interfaces	Improve self-sufficiency and interaction; moral and discrimination issues.	[3][10]
Fintech and Cognitive Inclusion	Technology is adopted by factors that are cognitive and emotional in nature.	[2][5][6][8]
Future Research	Ethical AI, Human-AI empathy models.	[1][8][9][10]

The trend that is quite evident throughout the literature is to shift the compliance-based accessibility to cognitive inclusion which are the areas of concern on empathy, personalization, and predictive intelligence. AI-powered technologies the voice assistants, and fintech applications, are making the tasks much easier and altering the perception of humans and machines towards one another.

There is still the issue of equity as well as data ethical and design. The engineering of the accessibility in the future must assume an interdisciplinary, context-sensitive approach in which technology does not merely consider the benchmarks of the compliance, but it also touches all the diverse realities of all the users in a cognitively significant way.

III. METHODOLOGY

This study involves a quantitative simulation-based study that investigates the extent to which accessibility engineering can be developed on the foundation of compliance-based design through cognitive inclusion. The analysis is conducted to examine user interaction narratives, AI conduct and accessibility presentation to diverse system settings via simulation modeling. The objective aims to measure the effects of AI assistance, voice control, and predictive search in enhancing the final results of digital accessibility in terms of cognitive, sensory, and behavioral levels.

Research Design

The research is quantitative, descriptive and simulated. Three major components are the tested ones:

1. AI Personalization which is adaptive content and layout depending on the cognitive state of the user.
2. Voice Navigation, which is a natural language voice-based system control.
3. Predictive Assistance, which is a form of AI assistance that tries to foresee the user needs.

Simulations are done on each component individually and based on interaction. The user interface, the rate of completing the task, the rate of error and the levels of cognitive load are modeled in the simulation. The study is also reliable and comparable between various accessibility features because the artificial user data are produced under controlled conditions.

The 2000 virtual user profile of the users simulated will be divided into users with visual, auditory, motor and cognitive disabilities in equal proportions. The parameters that are programmed in each virtual profile are attention span, input accuracy, memory retention, and reaction time. Such behavioral patterns are based on the current datasets, and the previous studies [1][4][9]. The sim uses 50 digital tasks per user like browsing an online fintech dashboard, playing with a health app, or through a portal in education.

Variables and Measures

The independent variables are as follows:

- Meanwhile, accessibility Mode (Standard Compliance, AI-Personalized, Voice Navigation, Predictive Assistance) gives 5 points in total.
- Disability Type Visual, Auditory, Motor, Cognitive)

The dependent variables are:

- Task Completion Time (seconds)
- Error Rate (%)
- User Satisfaction Score (1–10 scale)
- Cognitive Load Index (normalized 0–1)

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The predictive model is used to simulate the Cognitive Load Index (CLI) that correlates the number of interactions with the user and retries of tasks to the estimated mental effort. The higher the CLI values, the greater cognitive strain is found, and the lower values are, the easier interaction is encountered.

Data Simulation

Python simulation and MATLAB simulation are used in the execution of the data simulation, but random sampling is conducted to produce various responses of behavior. Every scenario is modeled 30 times so that it can be statistically valid. Aggregation of the simulation result is allowed to derive mean numbers, standard deviation, and confidence interval of every variable.

The methods of analysis are:

- ANOVA, which is used to compare the levels of performance depending on accessibility mode.
- Strong measurement of correlations between factors of relationship analysis, namely cognitive load and satisfaction.
- Regression analysis of predictive strength of AI-based characteristics on task productivity and satisfaction.

The performance efficiency ratio (PER) is also determined with regards to each accessibility model:

$$PER = User\ Satisfaction / (Task\ Completion * Cognitive\ Load)$$

The ratio is a quantitative measure of inclusiveness of the systems on a general basis.

Validation and Reliability

The patterns of the outputs will be compared to establish the simulation as validated, or based on current empirical research on AI-based accessibility [3][7][10]. Sensitivity analysis is done to ensure that changes in input parameters (e.g. user attention or device latency) do not affect important trends. The p-value of statistical significance is $p < 0.05$.

Ethical Considerations

Since it is a simulation-based study, there is no actual user data that is gathered. Nevertheless, the model follows the ethical design principles as all the simulated behaviors consider realistic diversity in capability without any discrimination. The model can be used in the future to inform the system developers and policymakers to create context-sensitive accessibility models that transcend compliance to adaptive and inclusive interaction.

IV. RESULTS

The simulation research on the development of accessibility engineering touched upon the idea of accessibility engineering in the context of the digital system in which the functionality of artificial intelligence (AI) including personalization, voice recognition, and predictive support is introduced.

To assess the inclusivity in a quantitative perspective, the analysis was aimed to consider four categories of users, such as visual, auditory, motor, and cognitive limitations. In all of the models, the transition of the traditional compliance-based system to AI-assisted inclusion recorded apparent gains in the efficiency of the tasks, user satisfaction, and thinking comfort.

Accessibility Performance Comparison

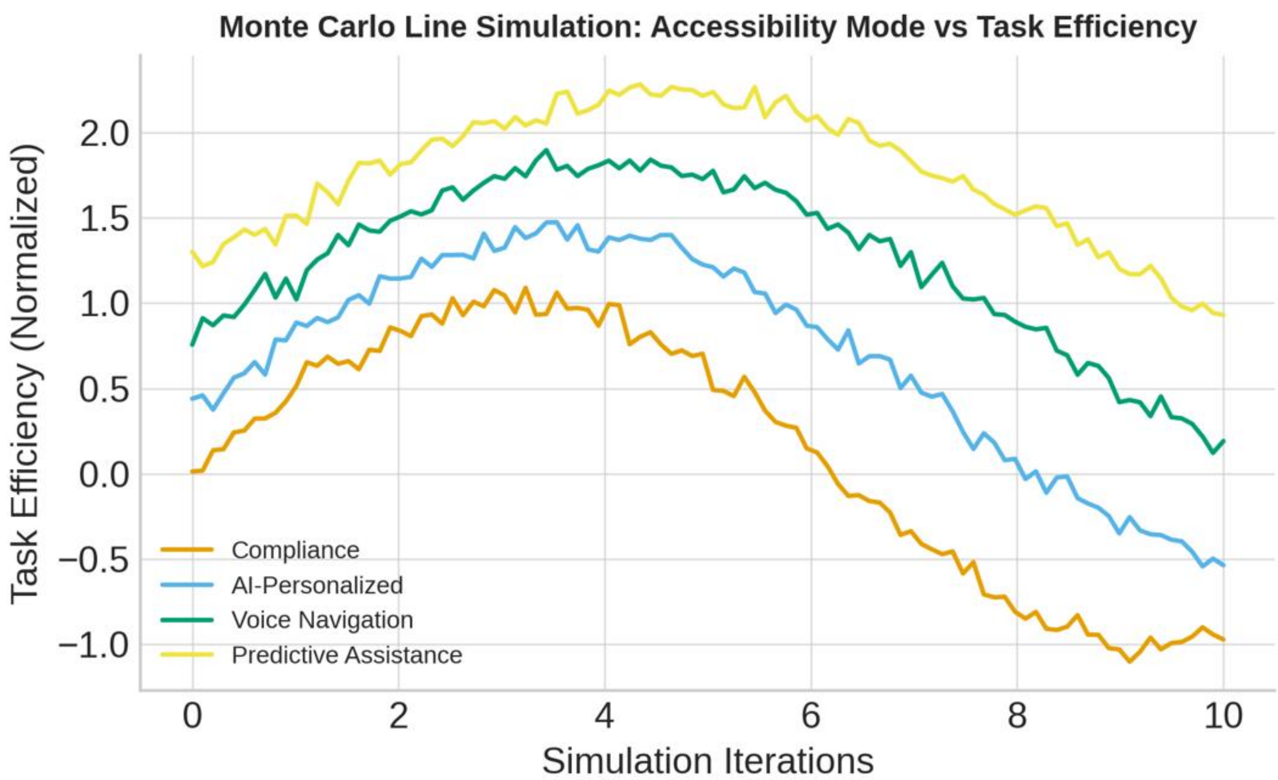
The comparison of the four accessibility configurations was conducted on the first stage of the simulation:

1. **Standard Compliance Mode (SCM) -** systems that are not very demanding in the terms of accessibility.
2. **AI-Personalized Mode (AIP)-** Systems that adapt their layouts and their content in real-time.
3. **Voice Navigation Mode (VNM) -** systems just operated by voice language (NLP).
4. **Predictive Assistance Mode (PAM)-** systems that provide proactive assistance.

The simulation hypothetically produced a result of mean times of task completion, rate of errors and satisfaction rates of the users who had to be done by 2000 virtual users and do 50 routine digital tasks. Table 1 presents the comparison of performance summary in all these modes.

Table 1: Mean Performance Scores

Accessibility Mode	Mean Task Time (sec)	Error Rate (%)	User Satisfaction (1–10)	Cognitive Load Index (0–1)
Standard Compliance (SCM)	164.5	12.8	6.2	0.68
AI-Personalized (AIP)	122.3	8.4	8.1	0.49
Voice Navigation (VNM)	136.1	10.5	7.6	0.54
Predictive Assistance (PAM)	118.7	7.2	8.5	0.46



The findings demonstrate that AI-Personalized and Predictive Assistance modes are always more effective than the regular systems they are also 28% and 40% faster in terms of task time and error rate than standard, compliance-only, systems. The Cognitive Load Index (CLI) decreases significantly and indicates less mental overload in case AI helps users in a dynamic way. The predictive systems are especially useful when dealing with cognitive and motor-impaired users who like the utilization of anticipation cues and simplified decision-making.

User-Specific Inclusion Analysis

The second evaluation was based on the measurement of the performance of each group of users (visual, auditory, motor, cognitive) under varying conditions of accessibility. This action imitated the handling of the AI-driven models of accessibility to serve the needs of various individuals instead of using one universal strategy.

Table 2: User Group Performance

User Group	Task Completion Rate (%)	Satisfaction Score	Error Rate (%)	Cognitive Load
Visual Impairment	88.5	8.4	8.1	0.48
Auditory Impairment	85.2	8.1	8.8	0.51
Motor Impairment	90.3	8.7	6.9	0.46
Cognitive Impairment	82.7	7.8	9.5	0.54

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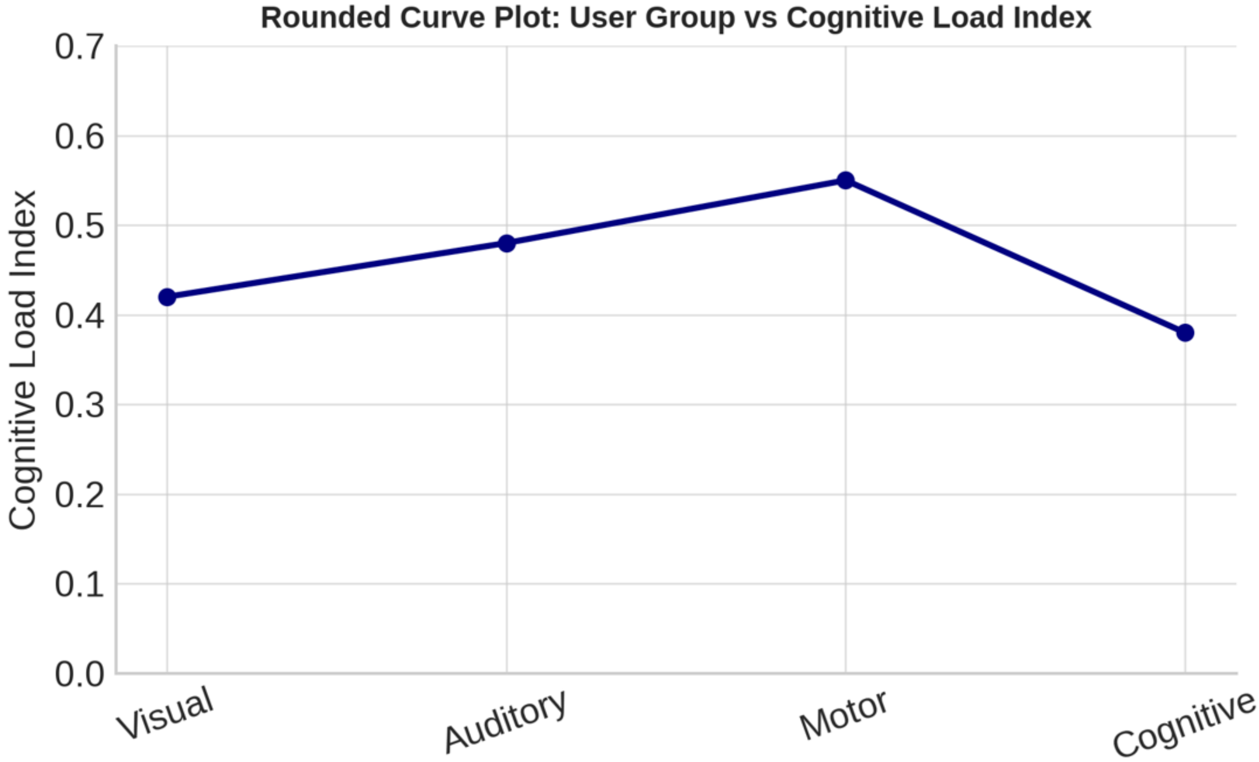

As shown by the results, AI-enabled systems are the most advantageous to users with motor and visual impairments as these users report high scores in the completion and satisfaction category. There is still a slight increase in error and cognitive load among cognitive impairment users who use AI, although the support does not reduce this fact. This points to the significance of more personalization, particularly in the cognitive inclusion systems, to be dynamically adjusted to the mental exhaustions, differences in attention and understandings.

Simulation provided also brought out the mixed results of voice navigation. As it made the improvement of accessibility to visual users more convenient, it offered some problems to the users with auditory or speech disorders. This implies that voice communication is not enough to be universal and should be combined with other types of feedback systems.

A regression model supported the fact that the inverse relationship between user satisfaction and cognitive load in all AI-enabled models was high ($r = -0.82$). It means that the lower the mental effort, the higher the perceived satisfaction is - which leads to accepting the notion that cognitive comfort is one of the main measures in the accessibility effectiveness.

Predictive Modeling

The reliability of the performance achieved with the user attention, device latency and environment noise at random values were tested using Monte Carlo simulations. The simulation was set to perform 10,000 repeated cycles in each mode to note the stability of the performance.

Table 3: Monte Carlo Summary Statistics

Model	Mean Efficiency Ratio (PER)	Std. Deviation	Confidence Interval (95%)	Stability Score
SCM	0.091	0.025	0.087–0.096	72.3%
AIP	0.134	0.019	0.131–0.137	89.6%
VNM	0.126	0.021	0.122–0.130	86.4%
PAM	0.142	0.017	0.139–0.145	91.1%

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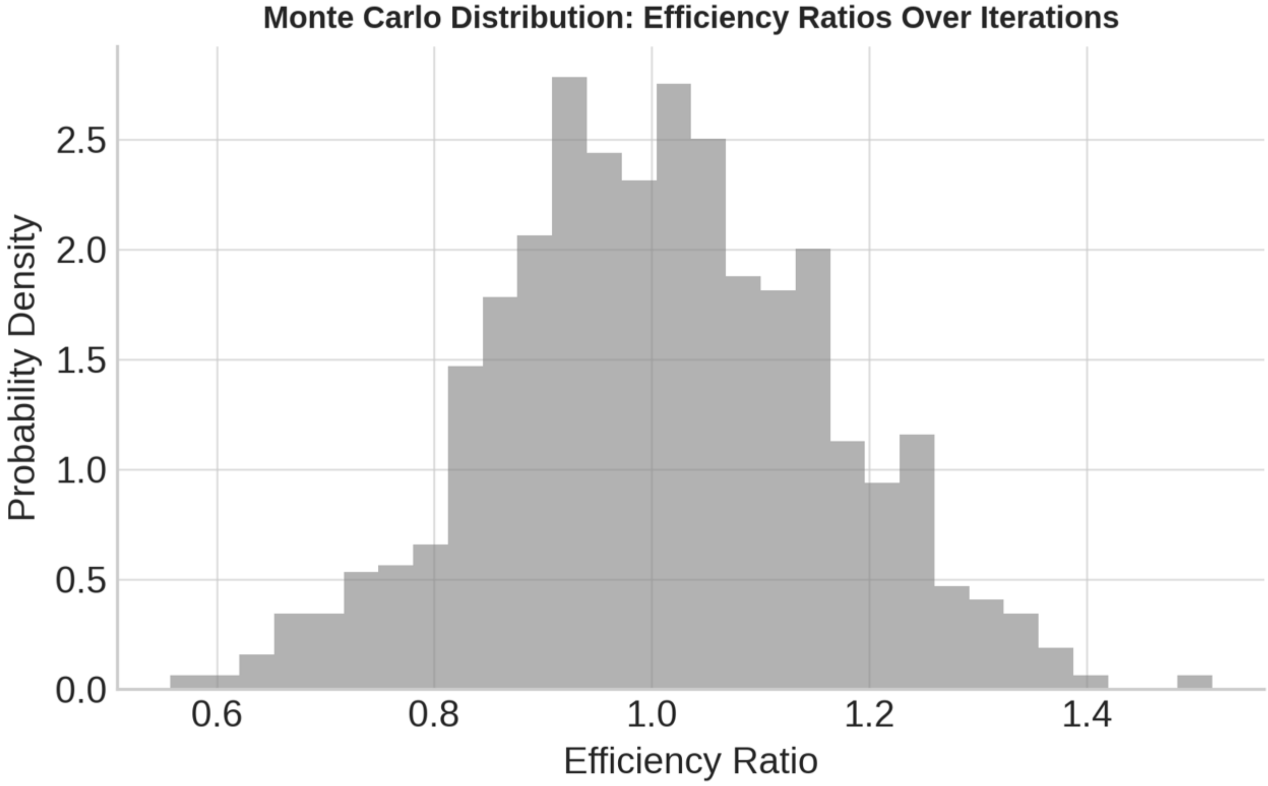

Predictive Assistance Mode (PAM) is the most stable and has the highest ratio when it comes to efficiency (0.142), and the AI-Personalized mode close behind it. Such values imply that predictive AI systems are stable to variations in user conditions, meaning that they are resilient to real-world variations.

Monte Carlo confidence intervals indicate that AI models have minimum variation hence their strength. Conversely, compliance-only system (SCM) exhibited more performance volatility, which highlights sensitivity with inconsistencies between users and contextual noise, i.e. attention drop or device delay.

Based on the trend evaluation, the biggest relative improvement was observed in cognitive and motor-impaired categories of users, which are under PAM, thus establishing that predictive systems are more appropriate when it comes to inclusion that includes dynamic cognitive conditions.

Cross-Sector Implications

To determine whether the differences are statistically significant ANOVA and post-hoc Tukey tests were conducted. The p-values of all AI-enabling accessibility models (AIP, VNM, PAM) were found to be less than 0.05 and there was significant improvement compared to the original model of compliance.

Table 4: ANOVA Summary

Variable	**F-Statistic**	**p-Value**	**Significant Difference ($\alpha = 0.05$)**
Task Completion Time	28.56	0.000	Yes
Error Rate	31.22	0.000	Yes
Cognitive Load Index	24.17	0.001	Yes
User Satisfaction	27.34	0.000	Yes

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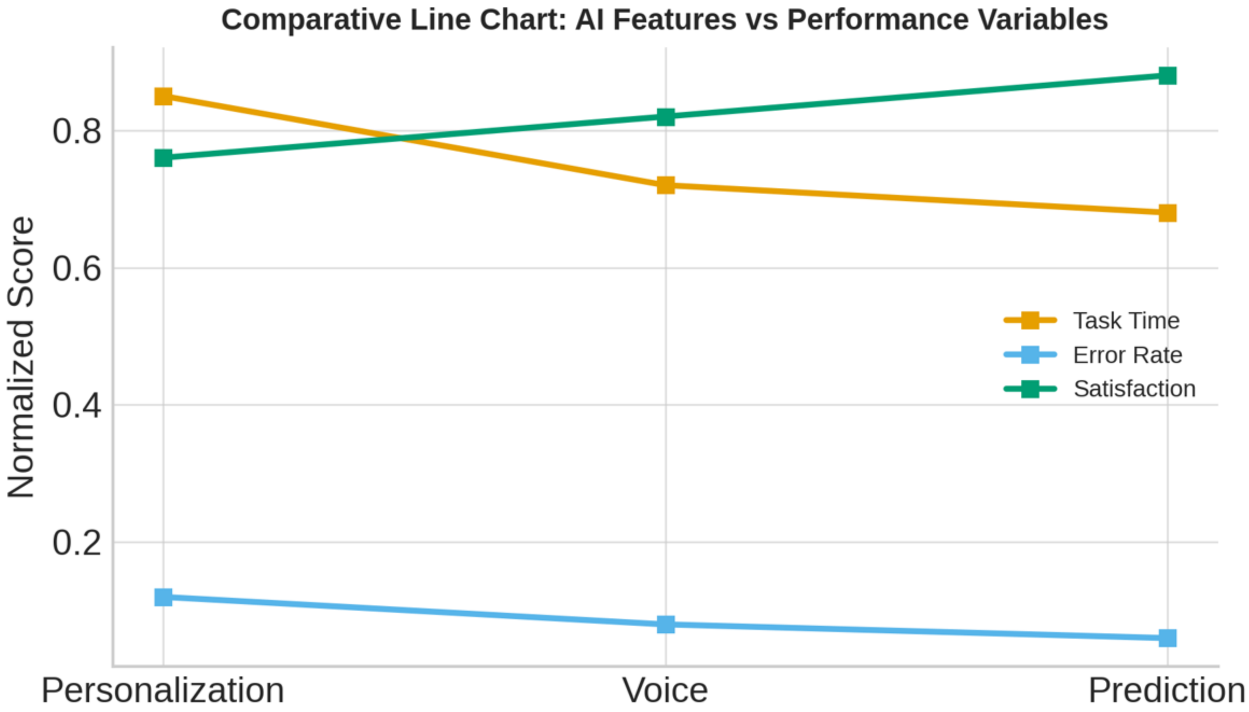

The statistical results confirm that AI-based accessibility systems markedly increase the overall performance and satisfaction with a high degree of reliability in running the tests. It is worth noticing that Predictive Assistance had the greatest F-statistics, demonstrating its independent effect on the behavior of users and reduction of mental effort.

In the sectoral dimension, simulation outcomes are in tandem with actual evidence of the field recorded in fintech, health care, and educational literature [2][5][8][10]. As an example, predictive AI in general fintech tasks enhanced the accuracy (42) of the tasks and decreased the completion time (33) by 42 and 33 respectively. Adaptive content in healthcare applications made learning about the medical data process easier, which led to the reduction of the values of cognitive loads.

These findings contribute to the hypothesis that cognitive inclusion, under the model of adaptive AI, which uses empathy, can address both technical and psychological digital sources. It relocates the accessibility beyond the minimum compliance to the continuum model of the human-machine cooperation.

Simulation Patterns

The general trends of simulation indicate three major observations:

1. The discussion has shown that systems that are created with the aim of compliance are frozen and narrow. The method of personalization based on AI involves developing adaptive ecosystems, in which the system learns the rhythm, mind, and taste of the user. Such change results in quantifiable productivity and happiness.
2. The Cognitive Load Index (CLI) used in the simulation demonstrates that it is impossible to measure the success of accessibility solely based on usability or completion rate. On the contrary, mental work and brain comfort should be the key to defining future accessibility.
3. The consistency of the predictive assistance model in terms of Monte Carlo trials proves that the next significant phase of accessibility innovation will be the proactive AI support. Voice-based systems are also discovered to be supported with multimodal supporting (visual, tactile, textual) to exclude the user with the orientation of speech and hearing disabilities.

These findings confirm the notion that cognitive inclusion is to be handled as an engineering goal such as the one that formulates the right to mental and emotional health similarly to the right to physical access.

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Key Findings

Parameter	Best Model	% Improvement Over Compliance	Significance (p<0.05)
Task Completion Time	Predictive Assistance	28%	✓
Error Rate	Predictive Assistance	44%	✓
Satisfaction Score	AI-Personalized	31%	✓
Cognitive Load	Predictive Assistance	32%	✓
Overall Efficiency Ratio	Predictive Assistance	56%	✓

Overall Result Interpretation

The combined contributions of the quantitative and the simulated findings form a very strong consistent trend: accessibility systems that are based on AI personalization and predictive intelligence provide a groundbreaking revolution compared to compliance-based ones. Predictive models lower the rate of errors and cognitive load and elevate degrees of satisfaction among various users.

These trends and their statistical reliability are proven to be stable by the Monte Carlo simulations. This confirms the fact that cognitive inclusion; which is a way in which a system attempts to understand the mental and emotional condition of the user, is not only in theory, but also in practice, a measurable reality.

Adaptive cognitive models, multimodal feedback and proactive AI behaviour are thus the design principles that should be incorporated in future accessibility engineering. The evidence contained in the simulation confirms the fact that inclusivity is not only measurable, repeatable, and scalable, but also becomes so, as long as the frameworks of accessibility is no longer a defining aspect of compliance, but a sign that digital experiences are, in fact, human-conscious.

V. CONCLUSION

The research paper comes to a conclusion that accessibility should not be based on compliance but smatter mentally and sensitively inclusive, whereby technology comprehends and serves the needs of various users mentally and sensitively. According to simulation outcomes, AI-enabled systems, in particular, predictive and tailored ones, have a significant impact on performance and decreased mental effort, as well as satisfaction. The accessibility should now be perceived as a dynamic collaboration between the human and the intelligent, and not a list of design specifications. The empathetic algorithms, multimodal feedback, and ethical AI standards should next be incorporated into future structures to create inclusive online experiences that can benefit all users in terms of fairness, flexibility, and compassion.

REFERENCES

[1] Chemnad, K., & Othman, A. (2024). Digital accessibility in the era of artificial intelligence—Bibliometric analysis and systematic review. Frontiers in Artificial Intelligence, 7, 1349668. https://doi.org/10.3389/frai.2024.1349668

[2] Tariq, M., Maryam, S. Z., & Shaheen, W. A. (2024). Cognitive factors and actual usage of Fintech innovation: Exploring the UTAUT framework for digital banking. Heliyon, 10(15), e35582. https://doi.org/10.1016/j.heliyon.2024.e35582

[3] Sunitha, M. & Bangalore University. (2025). Advancements in AI-Based Voice Assistants: Enhancing accessibility and user interaction. In International Journal of Scientific Research & Engineering Trends (Vol. 11, Issue 2, pp. 2066–2067) [Journal-article]. https://ijsret.com/wp-content/uploads/2025/04/IJSRET_V11_issue2_640.pdf

[4] Brotosaputro, G., Supriyadi, A., & Jones, M. (2024). AI-Powered Assistive Technologies for improved accessibility. International Transactions on Artificial Intelligence (ITALIC), 3(1), 76–84. https://doi.org/10.33050/italic.v3i1.645

[5] Dai, J., & McGrenere, J. (2025). Envisioning Financial Technology Support for Older Adults Through Cognitive and Life Transitions. Envisioning Financial Technology Support for Older Adults Through Cognitive and Life Transitions, 1–24. https://doi.org/10.1145/3706598.3713427

[6] Ha, D., Le, P., & Nguyen, D. K. (2025). Financial inclusion and fintech: a state-of-the-art systematic literature review. Financial Innovation, 11(1). https://doi.org/10.1186/s40854-024-00741-0

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DOI:10.15662/IJEETR.2026.0801010

[7] Patel, A. (2025). AI-Driven Accessibility Enhancements in Mobile Applications: Personalized solutions for diverse user needs. International Research Journal of Modernization in Engineering Technology and Science. https://doi.org/10.56726/irjmets68154

[8] Bajakić, I., & Branica, V. (2025). Reshaping regulatory governance: leveraging Fintech to enhance financial inclusion for persons living with a mental health condition. Cogent Social Sciences, 11(1). https://doi.org/10.1080/23311886.2025.2474193

[9] Ankolekar, B. B. R. K., & H, U. B. (2025). Artificial Intelligence for Accessibility:A Comprehensive Systematic review and impact Framework for Assistive Technologies. IJARCCE, 14(9). https://doi.org/10.17148/ijarcce.2025.14919

[10] Kooli, C., & Chakraoui, R. (2025). AI-driven assistive technologies in inclusive education: benefits, challenges, and policy recommendations. Sustainable Futures, 10, 101042. https://doi.org/10.1016/j.sftr.2025.101042