

AI-Driven Social Dialogue and Systemic Change: How Designers Use Technology to Foster Sustainable Social Innovation

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ABSTRACT

Social dialogue is a crucial mechanism for driving cross-sector collaboration, promoting social innovation, and achieving systemic change. However, traditional models face challenges in efficiency, transparency, and inclusivity, limiting their societal impact. AI-powered platforms are transforming dialogue by optimizing deliberation and expanding public participation. This study employs a multiple case study method to examine how AI facilitates social dialogue, enhances processes, and influences impact. Findings show that AI-driven platforms like Deliberatorium, Pol.is, Decidim, and CityScope improve transparency, inclusivity, and efficiency compared to traditional models such as the “Polder Model” and “TongxinHuhui”. However, issues related to algorithmic fairness, data privacy, and the digital divide persist. Designers play a crucial role in this transformation, as their role shifts from facilitators of communication to architects of AI-driven social dialogue systems, responsible for guiding, optimizing, and overseeing platforms to ensure algorithmic transparency and inclusivity. Therefore, AI does not serve as a decision-maker in social dialogue but rather as a tool for facilitating dialogue and consensus-building. Future research should further explore adaptive AI-driven dialogue frameworks to address governance challenges while ensuring accessibility, fairness, and interpretability across different social contexts.

Keywords: Social dialogue, Social innovation, Artificial intelligence, Decision-making, Designers

INTRODUCTION

Social dialogue plays a crucial role in global governance, social innovation, and sustainable development. It serves not only as a collaborative mechanism that promotes social inclusion, builds consensus, and resolves conflicts but also as a critical tool for driving social transformation and innovation. Social dialogue promotes inclusiveness by engaging a broad range of social actors, including representatives of workers, pensioners, employers, civil society organizations, the government, and academic institutions, who participate in discussions, seek solutions to common concerns, and negotiate policy changes together (Hermans et al., 2017).

In the realm of social innovation, the role of social dialogue is particularly prominent. It facilitates resource-sharing among stakeholders and promotes

co-creation mechanisms, enabling individuals from different backgrounds to jointly develop innovative solutions (Munduate et al., 2014). Social dialogue primarily fulfills three core functions:

- **Enhancing policy inclusiveness:** Through multi-stakeholder consultation, increase the participation of diverse social groups and ensure fairness in policy formulation.
- **Promoting social innovation:** Promote cross-sector collaboration and integrate mainstream social resources to jointly develop innovative solutions.
- **Improving social stability:** Utilize consultative mechanisms to prevent and address social conflicts, thereby reducing factors contributing to social instability.

However, traditional social dialogue models (such as face-to-face meetings and trade union negotiations) struggle to meet the demands of a rapidly changing modern society. When involving multiple stakeholders, these human-dependent and offline negotiation approaches often lead to inefficiencies in information integration, prolonged negotiation cycles, and limited transparency. Moreover, although social dialogue theoretically encompasses all societal groups, in practice, its organizational structure tends to favor technological elites or privileged interest groups, marginalizing certain demographics—such as the elderly, low-income individuals, and those with lower educational attainment—due to institutional barriers or technological limitations. Given these challenges, how to leverage emerging technologies to optimize social dialogue mechanisms, making them more efficient, transparent, and inclusive, has become a critical research topic in social innovation.

The advancements in Information and Communication Technologies (ICT) have caused the widespread adoption of immersive technologies throughout society. Among these, artificial intelligence (AI) is the most popular, increasingly integrated into various business practices. The capacity of this technology to process large volumes of data has made it indispensable for businesses, driving efficiency and innovation across sectors (Kerikmäe et al., 2024). Social dialogue has also been influenced by AI, as it transforms traditional dialogue models by integrating technologies such as natural language processing (NLP), machine learning (ML), data visualization, and decentralized autonomous organizations (DAO), enabling broader public participation on a larger scale (Hadfi & Suzuki, 2022).

However, while AI-driven social dialogue improves information processing efficiency, it still primarily relies on data algorithms and platform architectures. Without appropriate design interventions, the dialogue process may become overly structured and mechanized, making it difficult for non-technical groups to participate effectively. Additionally, algorithms may inadvertently amplify existing biases, and the opacity of data processing can weaken public trust in social dialogue. Therefore, merely providing technological tools does not guarantee fairness and broad participation in negotiations. AI must be integrated with more socially inclusive design strategies to truly empower democratic deliberation.

RESEARCH QUESTIONS

This study explores three key research questions:

1. How does social dialogue contribute to social innovation by improving collaboration efficiency and societal impact?
2. How do designers transition from traditional facilitators to AI-enabled system architects in social dialogue?
3. How can AI empower designers to optimize social dialogue in community development, fostering collaborative innovation and sustainable urban governance?

As AI-driven social dialogue platforms reshape the practice of social innovation, the role of designers has undergone a fundamental transformation. They are no longer merely facilitators of communication but have evolved into system architects who integrate inclusivity, transparency, and efficiency. Their responsibilities now extend to system architecture design, interaction optimization, and ethical oversight, ensuring that AI-enabled social dialogue platforms genuinely align with the values of democratic deliberation.

This study conducts a comparative analysis of traditional social dialogue models and AI-powered social dialogue frameworks, examining domestic and international cases within different governance structures. By identifying key design intervention points, the research aims to enhance the accessibility, fairness, and transparency of social dialogue. From a designer's perspective, this study seeks to bridge theoretical insights and practical strategies to foster the effective integration of AI into social dialogue, ultimately promoting sustainable social innovation.

METHODOLOGY

Given that social dialogue does not follow a single model and must be adapted to local contexts and historical labor relations (Hermans et al., 2017), this study employs a multiple case study method to comparatively analyze how artificial intelligence (AI) technologies facilitate the occurrence of social dialogue, optimize its processes, and influence its outcomes. Furthermore, the study explores how designers adjust their roles in response to this technological transformation to adapt to the emerging environment.

In AI-driven social dialogue models, ensuring that citizens become co-creators rather than mere information recipients is a key challenge in digital governance. This study compares two types of representative social dialogue models: Traditional social dialogue models, including China's TongxinHuhui and the Netherlands' Polder Model, representing community-driven and institutionalized negotiation approaches, respectively. AI-driven social dialogue platforms at different stages of technological advancement, including Deliberatorium, Pol.is, Decidim, and CityScope, which illustrate the evolution of AI applications in social dialogue.

The case selection follows three core criteria: technological integration, governance effectiveness, and decentralized participation:

- **Technological Integration:** The case must incorporate AI technologies (e.g., NLP, ML, data visualization) to enhance social dialogue and make negotiation mechanisms more intelligent and structured.
- **Governance Effectiveness:** The case must demonstrate significant improvements in transparency, consensus-building, and public participation, thereby enhancing decision-making traceability and fairness.
- **Decentralized Participation:** The case must empower citizens or community members to actively participate in policy deliberation, shifting away from traditional top-down decision-making models.

This case selection framework not only demonstrates the evolution of social dialogue models but also provides theoretical and practical insights into AI applications in social dialogue.

CASE ANALYSIS: TRADITIONAL SOCIAL DIALOGUE MODELS

The Netherlands' Polder Model is a consensus-driven social dialogue mechanism that emphasizes tripartite cooperation among the government, enterprises, and trade unions to avoid severe social conflicts and strike a balance between economic growth and social justice (Araújo & Meneses, 2018). This model effectively facilitates information exchange, negotiation, and joint actions between employers and employees (Hermans et al., 2017). In this framework, representatives from the Labor Foundation (Stichting van de Arbeid) and the Social and Economic Council (SER) meet regularly to negotiate policies on wages, taxation, and social welfare, forming an institutionalized social dialogue structure.

However, this model was historically highly reliant on traditional trade unions, making it unsuitable for the emergence of the gig economy and platform-based labor markets. As short-term contracts, freelance work, and remote employment become more prevalent, trade unions struggle to represent these emerging labor groups effectively. Consequently, the Polder Model's mediation mechanisms have become less effective in flexible employment environments. Furthermore, this model relies on long-term negotiations and incremental consensus-building, which, while beneficial for social stability, lacks the agility required to address the rapid changes in digital labor markets.

The TongxinHuhui project originated in Pi Village, Beijing, where migrant workers organized themselves based on shared geographic and identity-based concerns. Initially, this initiative had no formal designer involvement; rather, it operated as a grassroots movement in which the New Workers' Art Troupe used music and theatrical performances to raise awareness of labor conditions. At this stage, social dialogue was largely one-directional, primarily relying on performances and media advocacy rather than interactive engagement with policymakers.

The establishment of the TongxinHuhui Public Welfare Store marked a pivotal transition from social advocacy to social innovation. Through shared economy models, the project facilitated resource redistribution and provided

employment opportunities for vulnerable groups, gradually forming a sustainable social support system. This phase saw the maturation of social dialogue mechanisms, as community workshops and regular consultations became key methods for inclusive decision-making.

However, as a grassroots initiative, TongxinHuhui still adheres to relatively traditional social dialogue structures, relying on face-to-face interactions and limited digital engagement. The project lacks systematic data management and AI-powered analytics, making it challenging to efficiently integrate feedback and scale social dialogue for long-term sustainability.

CASE ANALYSIS: AI-DRIVEN SOCIAL DIALOGUE PLATFORMS

Deliberatorium was developed in 2008 by the MIT Center for Collective Intelligence to improve large-scale social problem-solving through structured digital deliberation. It employs the Issue-Based Information System (IBIS) framework, using argument maps to organize discussions logically. This system allows participants to submit arguments, counterarguments, supporting statements, and additional information in a structured format, reducing information redundancy and emotional interference in deliberations. AI is primarily applied in automated argument analysis, ensuring logical coherence throughout discussions. Research has shown that this system effectively minimizes emotional disruptions and enhances rational discourse (Macnamara, 2013). However, its complex interface and heavy reliance on backend AI automation have made it less accessible to general users, increasing barriers to participation.

Pol.is, founded by Colin Megill and Mike Storm in 2015, was initially designed as an experimental tool to study how social media influences political discussions. It later evolved into an open-source platform for facilitating large-scale online deliberation across governments, enterprises, and nonprofit organizations (Macnamara, 2013). One of its most well-known applications is the vTaiwan initiative, which has helped the Taiwanese government negotiate public policies through AI-driven consensus building. This system leverages machine learning and data visualization to automatically detect common ground among participants and generate real-time visualized opinion maps. AI technologies in Pol.is primarily enable anonymous data clustering and automated consensus formation, allowing policymakers to identify key areas of agreement and controversy more efficiently. Research indicates that Pol.is successfully mitigates the polarization often seen in social media discussions, leading to more constructive dialogues. Designers play a crucial role in this process by developing intuitive visualizations that help citizens understand diverse perspectives, fostering deliberation rather than reinforcing ideological divisions. However, Pol.is tends to attract digitally literate users, while older adults, lower-income groups, and those with limited digital skills may struggle to participate effectively due to the digital divide.

Decidim, an open-source electronic democracy platform, was developed under the leadership of the Barcelona City Council and has been deployed in over 450 public institutions across 19 countries. The name “Decidim”

translates to “We Decide,” reflecting its goal of enhancing participatory democracy. The platform enables citizens to vote online, submit proposals, and engage in policymaking discussions, leading to a 30% increase in user participation compared to traditional policy consultation methods and a 25% increase in government trust (Decidim, n.d.). Built using open-source technologies like Ruby on Rails and PostgreSQL, Decidim harnesses artificial intelligence to analyze citizen engagement patterns quickly and accurately, helping governments identify key issues of public concern. Designers play a dual role: they not only improve the user experience by ensuring easy navigation and proposal submission, but also act as facilitators of democratic governance by promoting transparency in AI algorithms. This transparency is essential for balancing technological efficiency with inclusive democratic participation. However, Decidim’s success ultimately hinges on government adoption. The platform serves as a facilitative tool, providing space for open engagement and expression, rather than functioning as an autonomous decision-making system. Therefore, one of the designer’s primary responsibilities is to build trust between citizens and government institutions by ensuring transparency and credibility in decision-making processes, fostering sustained public confidence in government actions.

CityScope, developed by the MIT Media Lab, integrates Geographic Information Systems (GIS), 3D urban simulations, and AI-driven predictive modeling to support urban planning and public policy discussions. It has been deployed in multiple cities to provide real-time simulations of different policy impacts on social and economic structures (Alonso et al., 2018).

CityScope’s core strength lies in combining data visualization with social dialogue, creating an interactive governance model that enables stakeholders—including governments, researchers, businesses, and citizens—to co-design urban policies collaboratively. Unlike traditional top-down urban planning, CityScope facilitates participatory decision-making by allowing different stakeholders to model policy scenarios and evaluate potential outcomes using AI-driven simulations. Designers play an essential role in this process by creating AR/3D interaction models, optimizing social dialogue mechanisms, and overseeing ethical concerns related to AI applications to ensure that AI-driven urban development is equitable and inclusive. However, CityScope’s high computational resource requirements pose a challenge for adoption in developing countries, where digital infrastructure may be limited. Additionally, AI training data may contain socio-economic biases, which—if left unchecked—could inadvertently reinforce structural inequalities in urban planning.

RESULT

Social dialogue, as a key driver of social innovation, plays a pivotal role in three main aspects. First, it improves collaboration efficiency by enabling cross-sector, multi-stakeholder deliberation on complex societal issues, reducing information asymmetry and fostering adaptive policy mechanisms. Second, it enhances societal impact by ensuring that policymaking is not limited to technocratic elites or interest groups but instead integrates diverse

perspectives to promote fair and sustainable social innovation (Hermans et al., 2017). Third, Generative AI has transformed how conversations and decision-making processes unfold in digital environments, expanding public engagement and improving the feasibility of social innovation initiatives (Bansal et al., 2024). For instance, Decidim increases policy transparency, Pol.is reduces polarization through AI-driven consensus mapping, and CityScope enhances urban governance with data simulations. These platforms not only enhance the efficiency of information integration and decision-making processes but also foster a more inclusive and participatory social innovation ecosystem.

As AI becomes more deeply integrated into social dialogue, designers have undergone a fundamental role transformation—from facilitators of information exchange to architects of AI-enabled social dialogue systems. This shift entails multiple responsibilities:

- **Interaction Optimization:** Designers need to optimize information structures and eliminate technical barriers to ensure that individuals from diverse backgrounds can participate in discussions smoothly.
- **Algorithm Transparency:** The “black-box” nature of AI algorithms is similar to closed negotiations in traditional social dialogue, where a lack of transparency can lead to a loss of public trust. Designers must continuously monitor and adjust AI systems to prevent unfair outcomes.
- **System Architecture Design:** Designers must actively shape AI-driven deliberative mechanisms to promote diverse perspectives rather than favoring dominant opinions.

HOW CAN DESIGNERS LEVERAGE AI TO PROMOTE SOCIAL INNOVATION

The integration of artificial intelligence (AI) in social dialogue is reshaping public discussions. Designers play an important role in this transformation, as not only develop technological tools but also facilitate dialogue by shaping participation, structuring discussions, and influencing societal impact. Their work encompasses three key stages: establishing a foundation for participation, optimizing interaction during discussions, and ensuring the effective implementation of outcomes.

Before social dialogue begins, designers must lower the barriers to public participation, making discussions more accessible and inclusive. Many individuals, especially those without professional expertise, may have valuable opinions but lack the necessary skills or tools to structure discussions effectively. AI can assist by analyzing trends in social media, news, and public discussions to identify key topics and provide structured dialogue frameworks. For example, Pol.is employs AI to detect patterns in public opinions, allowing participants to visualize areas of agreement and disagreement. Similarly, Decidim, an open-source digital democracy platform, provides predefined discussion frameworks, ensuring that public discussions are well-organized and accessible. While community organizers and activists often initiate social dialogues, they tend to rely on intuition

rather than systematic methods, making it difficult to address complex social issues effectively. AI can support these non-professional designers by offering data-driven insights that help them structure discussions in a more organized manner. In contrast, professional designers not only utilize these tools but also develop and refine them. AI-powered features such as data visualization, interactive design, and automated analysis enhance inclusivity and engagement in social discussions. CityScope, for instance, provides AI-driven policy simulations that enable experts and the public to understand the potential outcomes of various policy decisions, fostering more informed and data-driven discussions.

Once social dialogue begins, designers must ensure that interactions are clear, inclusive, and balanced. Social discussions often involve participants from diverse backgrounds, and without careful design, conversations may become disorganized or dominated by specific groups. AI can help structure discussions so that all voices are fairly represented. Pol.is categorizes public opinions and highlights areas of consensus, enabling participants to clearly identify key discussion points. Similarly, Deliberatorium employs AI to ensure the logical coherence of arguments, helping maintain a structured and focused discussion environment. Furthermore, designers must address ethical concerns related to AI-powered social dialogue. AI algorithms, if not carefully managed, may unintentionally reinforce biases or deepen societal divisions. Recommendation systems that exclusively present users with content aligning with their existing views can lead to one-sided discussions and the formation of “echo chambers.” To mitigate these risks, designers must actively ensure that AI-driven dialogue remains balanced, inclusive, and free from algorithmic bias that could distort public discourse.

The impact of social dialogue extends beyond discussions themselves and depends on how the results are recorded, analyzed, and applied. Designers must develop efficient storage and tracking mechanisms to ensure that discussion content is preserved, accessible, and useful for future policymaking. Deliberatorium, for example, employs structured data storage to enable users to review past discussions, reducing redundancy and improving logical coherence. Additionally, designers must enhance feedback systems to help policymakers better understand public concerns and adjust governance strategies accordingly. AI can analyze large volumes of discussion data, identifying key trends that enable governments to make more responsive and evidence-based policy decisions. CityScope, for instance, utilizes AI-powered data visualization to track trends in public discourse, allowing government agencies to assess the impact of discussions on policy formulation. By presenting information in a clear and intuitive manner, it enhances policymakers’ ability to respond to public concerns with greater accuracy and effectiveness. To expand the reach of AI-driven social dialogue, designers must also ensure that these tools are flexible and scalable to accommodate diverse social environments and discussion needs. Decidim, as an open-source platform, allows different regions to adopt tested and effective discussion models while enabling localized customization. Similarly, Pol.is leverages AI-generated visual representations of public consensus,

improving transparency in policy decision-making and fostering greater public trust in governance.

By lowering participation barriers, optimizing interaction experiences, and ensuring the effective implementation of dialogue outcomes, designers can transform AI-driven social dialogue into a powerful tool for social progress. Their work not only enhances the quality of public engagement but also strengthens the scientific and transparent nature of policy development, ensuring that social dialogue serves as a meaningful and lasting democratic practice.

CONCLUSION

This study examines the role of traditional social dialogue models and AI-driven social dialogue platforms in the practice of Social Innovation, analyzing how they optimize deliberative mechanisms, enhance the efficiency and impact of Social Innovation, and transform designers' roles from mere information transmitters to systemic facilitators of social dialogue. The findings indicate that AI-driven social dialogue not only expands the scale and inclusivity of public deliberation but also fosters a more transparent and sustainable model of Social Innovation. In this process, designers undertake multiple responsibilities, including interaction optimization, algorithm transparency supervision, and system architecture design, ensuring that AI facilitates fair deliberation rather than reinforcing societal biases.

At this stage, the application of artificial intelligence (AI) in social dialogue faces numerous challenges, including significant issues related to algorithmic fairness, data privacy protection, and social inclusivity. To ensure that AI-driven social dialogue remains both equitable and accessible, future research should focus on optimizing AI algorithms while strengthening guidance and regulatory frameworks to enhance fairness and interpretability in deliberative processes. It should also examine how AI can support long-term social transformation, extending dialogue beyond policy discussions to practical governance. Additionally, research should explore the development of adaptive and sustainable AI-driven platforms that function effectively across diverse cultural and social contexts.

Overall, AI is reshaping the social dialogue model and unlocking new possibilities for Social Innovation. However, technological advancement must remain grounded in social realities. Designers, through the synergy of technology and design, must promote fairness, transparency, and sustainability in social deliberation. Moving forward, an important area of exploration will be how designers can further leverage their expertise to deepen AI integration in social dialogue, making it a truly scalable and sustainable tool for Social Innovation.

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