

PLACING HUMANS AT THE CORE: AI-DRIVEN PRODUCTIVITY IMPROVEMENTS IN ASIAN ORGANISATIONS

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ABSTRACT

This study explores the role of human-centric Artificial Intelligence (AI) in enhancing organisational productivity across diverse Asian contexts. As AI technologies become integral to the digital transformation of workplaces, there is a growing emphasis on deploying AI systems that augment human capabilities while ensuring ethical, inclusive, and socially responsible outcomes. This study investigates how organisations in Asia—specifically, Singapore, South Korea, India, Japan, and China—integrate human-centric AI principles to drive productivity improvements. Employing a qualitative comparative case study methodology, data from organisational documents, expert interviews, and productivity reports were thematically analysed from various secondary sources to uncover patterns and challenges in human-AI collaboration across diverse sociocultural contexts. The findings reveal that organisations adopting transparent and inclusive AI governance, such as Singapore’s multi-stakeholder frameworks and South Korea’s public-private partnerships, demonstrate significant efficiency and workforce satisfaction gains. Conversely, centralised governance models, such as China’s, emphasise social stability but reveal potential tensions surrounding employee participation in AI oversight. India’s grassroots-driven AI applications illustrate how contextualised, human-centric AI can optimise productivity in underserved sectors. Japan’s integration of AI governance with social welfare underscores ethical concerns unique to aging societies. This study highlights key productivity benefits, including task automation, decision-making acceleration, and innovation facilitation. However, challenges persist, notably workforce digital skill gaps, infrastructural limitations, and ethical governance complexities. This study advocates for culturally sensitive adaptive governance, continuous digital literacy investment, and participatory change management to ensure that AI technologies augment rather than replace human potential. These findings offer valuable insights for policymakers and organisational leaders seeking to harness human-centric AI to sustainably boost productivity while safeguarding ethical standards in Asia’s pluralistic workplaces.

1. Introduction

Artificial Intelligence (AI) has transitioned from an emerging technological concept to a central driver of organisational strategy, profoundly reshaping how firms operate, compete, and innovate. Across global markets, AI systems now play integral roles in automation, predictive analytics, decision optimisation, and workflow redesign. As organisations deepen their reliance on AI, the conversation has shifted from questions of technological efficiency to concerns about how these systems affect human well-being, organisational inclusiveness and long-term societal outcomes. This shift has amplified interest in human-centric AI, an approach that prioritises fairness, transparency, accountability, and protection of human agency when designing and deploying AI systems (Floridi & Cows, 2019).

Human-centric AI emphasises the need for organisations to integrate ethical governance structures that ensure AI augments rather than replaces human work. This perspective resonates with the expanding global consensus that AI systems should enhance human capabilities, strengthen participation, and broaden access to economic opportunities (Jobin et al., 2019; Shneiderman, 2020). When embedded effectively, human-centric AI can strengthen organisational legitimacy, improve employee trust, and ensure that productivity gains do not come at the cost of social equity or ethical responsibility (Cath, 2018; Zuboff, 2019).

The relevance of human-centric AI is particularly pronounced in Asia. As one of the world's most heterogeneous regions, Asia represents a spectrum of digital maturity, regulatory diversity, workforce capabilities, and demographic challenges. Advanced digital economies, such as Singapore and South Korea, have adopted structured AI governance models anchored in transparency and stakeholder engagement (World Economic Forum, 2020; Lee & Lim, 2021). In contrast, India's AI adoption is driven by large-scale grassroots innovation aimed at improving agricultural productivity, financial inclusion, and public service delivery in underserved contexts (NITI Aayog, 2018). Japan faces a unique demographic imperative, leveraging AI to address labour shortages and enhance eldercare, whereas China's rapid technological expansion is coupled with centralised governance approaches that raise complex questions regarding accountability and public participation (Ding, 2021; Creemers, 2022).

These diverse trajectories make Asia a compelling context for examining how organisations operationalise human-centric AI to enhance productivity. While AI adoption has generated measurable improvements in efficiency, innovation, and strategic decision-making across sectors, challenges such as digital skill gaps, infrastructural disparities, and ethical dilemmas continue to pose constraints (Manyika et al., 2017; Reddy et al., 2022). Understanding how organisations navigate these tensions is essential for developing governance frameworks that enable responsible and sustainable AI integration.

Against this background, the present study investigates how organisations in Singapore, South Korea, India, Japan, and China adopt human-centric AI principles and how these practices influence productivity. By examining diverse sociocultural and governance environments, this study provides comparative insights into how ethical AI strategies can support inclusive growth and organisational performance. These findings contribute to the growing scholarly discourse on responsible AI and offer practical implications for policymakers and organisational leaders seeking to integrate AI in ways that balance technological advancement with human values.

2. Significance of the Study:

The growing integration of Artificial Intelligence (AI) into organisational processes has created a pressing need to understand how technological innovation can be aligned with ethical, inclusive, and human-centred management practices. While AI promises substantial gains in efficiency, decision accuracy, and innovation, these benefits are often accompanied by concerns related to transparency, fairness, and the displacement of human labour (Shneiderman, 2020; Zuboff, 2019). The significance of this study lies in its focus on human-centric AI, a framework that seeks to ensure that AI augments human potential rather than undermining it (Floridi & Cows, 2019). By analysing how organisations integrate human-centric governance mechanisms into AI adoption, this study highlights pathways for achieving productivity gains without compromising ethical standards or workforce well-being.

This study is particularly important in the Asian context, where diverse governance systems, socioeconomic conditions, and cultural expectations shape the adoption of AI technologies. The existing literature remains heavily Western-oriented, resulting in limited insights into how Asian

organisations confront region-specific challenges such as uneven digital infrastructure, demographic transitions, and complex regulatory environments (Lee & Trimi, 2021; Manyika et al., 2017). By comparing approaches across Singapore, South Korea, India, Japan, and China, this study provides a rare cross-national perspective on how human-centric AI principles can be adapted to distinct institutional and cultural contexts.

Furthermore, this study contributes to managerial practice by demonstrating how transparency, inclusivity, and accountability can enhance organisational legitimacy and employee trust, both of which are critical for sustainable digital transformation (Cath, 2018; Jobin et al., 2019). The findings offer actionable insights for leaders seeking to balance productivity with responsible governance, thereby supporting long-term organisational resilience. From a policy perspective, this study underscores the need for an integrated AI governance framework that reflects regional priorities and sociocultural values. Collectively, these contributions position this study as an important reference for scholars, policymakers, and organisational leaders navigating the complexities of AI-driven transformation in diverse Asian economies.

3. Research Objectives

This study explores how human-centric Artificial Intelligence (AI) can be leveraged to enhance organisational productivity across diverse Asian contexts. Specifically, this study seeks to analyse how AI systems prioritise ethical, inclusive, and socially responsible outcomes that are integrated into the organisational practices of five countries: Singapore, South Korea, India, Japan, and China. These nations represent a broad spectrum of governance structures, cultural values, and technological maturity, making them suitable for comparative analyses.

This study was guided by the following objectives:

1. To examine how organisations in selected Asian countries adopt human-centric AI principles, such as transparency, inclusivity, and ethical governance.
2. To evaluate the impact of human-centric AI adoption on organisational productivity, focusing on key outcomes such as efficiency, innovation, decision-making, and workforce empowerment.
3. To identify the challenges and tensions organisations face in implementing human-

centric AI, including ethical dilemmas, workforce skill gaps, and infrastructural limitations.

These objectives collectively contribute to advancing theoretical and practical understanding of how responsible AI adoption can support sustainable productivity outcomes. They also provide a foundation for developing future organisational and policy frameworks that align technological progress with human-centric values.

4. Literature Review

4.1 Human-Centric Artificial Intelligence

The concept of human-centric AI has emerged as a counterbalance to automation and technological dominance narratives. Human-centric AI emphasises the design of systems that are transparent, accountable, inclusive, and aligned with human welfare (Floridi & Cowls, 2019). According to Jobin et al. (2019), more than 80 global AI guidelines emphasise principles such as fairness, accountability, privacy, and inclusivity. While these frameworks are largely normative, they demonstrate a consensus that AI development must be socially responsible and culturally adaptable to the local context of the Philippines.

Human-centric AI is based on the philosophy that AI should augment human intelligence rather than replace it (Shneiderman, 2020). By prioritising human values, it addresses risks such as algorithmic bias, lack of transparency, and workforce alienation. For organisations, this approach not only ensures ethical compliance but also enhances employee trust and public legitimacy (Cath, 2018).

4.2 AI and Organisational Productivity

A growing body of literature highlights the productivity benefits of AI adoption across various fields. Brynjolfsson and McAfee (2017) argue that AI drives a “second machine age,” where algorithms enable unprecedented gains in efficiency and innovation. Organisations that integrate AI into their operations can automate routine tasks, accelerate decision-making, and generate insights from large data sets (Bughin et al., 2018). Davenport and Ronanki (2018) found that early adopters of AI in business gained advantages in process optimisation, customer engagement, and risk management.

However, these benefits are not uniformly distributed across the population. Workforce skill gaps and infrastructural disparities often hinder AI’s productivity potential of AI, particularly in developing economies (Manyika et al., 2017). Furthermore, an overemphasis on efficiency risks

risks ignoring human-centric considerations such as employee well-being, participation in decision-making, and social trust (Zuboff, 2019).

4.3 Governance Models in Asia

The adoption of AI in Asia reflects the region's diverse governance tradition.

Singapore has developed comprehensive frameworks, such as the Model AI Governance Framework (2019), which emphasises transparency, stakeholder engagement and accountability. These frameworks encourage organisations to integrate ethical principles into AI systems while maintaining their competitiveness (Kshetri, 2021).

South Korea promotes innovation ecosystems through public-private partnerships. Its AI strategy integrates workforce training and participatory governance, ensuring employee inclusion in technological transitions (Lee & Trimi, 2021).

China's centralised model prioritises efficiency, social stability, and large-scale implementation. Although this approach accelerates AI integration, it raises concerns regarding limited workforce participation and surveillance practices (Ding, 2018). India represents a unique case of grassroots-driven innovation, where AI applications address challenges in agriculture, health care, and education. India's National Strategy for AI (2018) highlights "AI for All", promoting inclusivity and contextual relevance (NITI Aayog, 2018).

Japan has integrated AI adoption into welfare systems to address demographic challenges, especially aging. The Society 5.0 initiative envisions AI as part of a human-centric society in which technology balances economic productivity with social well-being (Fukuyama, 2018).

These varying governance models demonstrate that AI adoption cannot be separated from the cultural, political, and social contexts.

4.4 Ethical Challenges and Workforce Implications

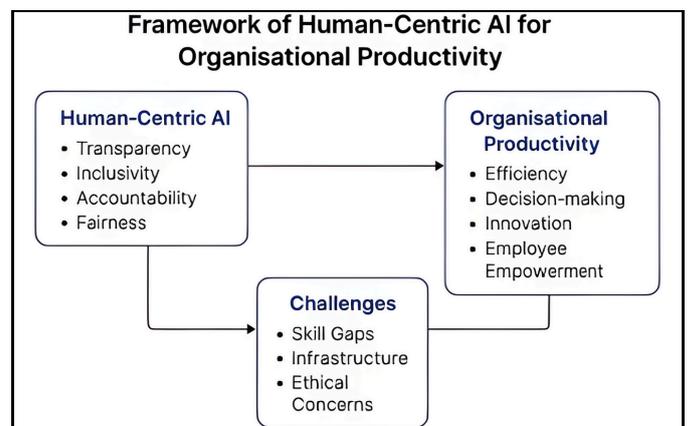
However, the adoption of human-centric AI faces several challenges. Algorithmic bias and lack of transparency undermine organisational legitimacy and worker trust (O'Neil, 2016). Workforce digital skill gaps, especially in developing regions, limit employees' capacity to collaborate effectively with AI systems (Chin et al., 2021). Furthermore, ethical dilemmas, such as worker surveillance, decision-making opacity, and displacement anxieties, create tensions in organisational contexts (Zhang & Dafoe, 2019).

However, human-centric AI frameworks suggest that these challenges can be addressed through

participatory governance and continuous investment in digital literacy.

5. Research Gaps

Although research on Artificial Intelligence (AI) is expanding, several gaps persist in the context of human-centric AI. First, existing studies are predominantly centred on Western settings, offering limited insight into how diverse Asian governance models, institutional arrangements, and sociocultural environments influence responsible AI adoption. Second, empirical evidence on how organisations practically implement human-centric principles, such as transparency, inclusivity, and accountability, remains sparse, particularly regarding their effects on productivity and workforce outcomes. Third, there is limited understanding of how organisations in different Asian economies interpret and adapt global responsible AI frameworks to their local contexts. This study addresses these gaps through comparative analyses of Singapore, South Korea, India, Japan, and China to develop a contextually grounded understanding of the integration of human-centric AI.



Flow Diagram 1: Framework of Human-Centric AI Organisational Productivity

5.1 Methodology

This study adopts a qualitative comparative case study design to examine how organisations in Asia integrate Human-Centric Artificial Intelligence (HCAI) principles and their influence on productivity. A secondary data-driven approach was selected to capture a broad and contextualised understanding of organisational practices, governance structures, and socio-cultural dynamics across diverse national contexts (Yin, 2018).

5.2 Data Collection

This research relies exclusively on secondary data sources, including government policy documents, organisational white papers, annual reports,

industry surveys, international guidelines, and peer-reviewed academic literature. Sources such as the World Economic Forum, OECD reports, PwC publications and national AI strategies were systematically reviewed. This approach ensures access to credible, large-scale datasets and diverse perspectives without logistical constraints of primary fieldwork.

5.3 Data Analysis:

The collected documents were subjected to thematic content analysis, involving coding and categorisation to identify patterns related to transparency, inclusivity, ethical governance, productivity outcomes, and implementation challenges. A comparative lens was applied across five focus countries—Singapore, South Korea, India, Japan, and China—to capture both the commonalities and contextual differences in HCAI's adoption.

5.4 Ethical Considerations:

Although this study used publicly available secondary sources, ethical rigour was maintained by ensuring accurate citations, avoiding misrepresentation, and critically evaluating data for reliability and potential biases.

By synthesising diverse secondary sources, this methodology provides a robust and holistic foundation for understanding how HCAI shapes organisational productivity and governance across various Asian contexts.

6. Analysis and Discussion of the Research Objectives

Objective 1: Examining the Adoption of Human-Centric AI Principles in Selected Asian

6.1 Countries

Artificial Intelligence (AI) adoption in Asia is progressing rapidly; however, the success of such adoption increasingly depends on embedding human-centric AI (HCAI) principles, notably transparency, inclusivity, and ethical governance. These principles ensure that technological innovation aligns with human values, societal trust, and sustainability (Floridi & Cowls, 2019). This objective aims to explore how organisations in Singapore, South Korea, India, Japan and China operationalise these principles.

6.2 Transparency in Human-Centric AI Adoption Across Asian Countries:

Transparency is a central pillar of human-centric artificial intelligence (HCAI), emphasising the importance of explainability and the ability of organisations to communicate clearly how AI-driven decisions are made. Jobin, Lenca, and Vayena (2019) highlight that transparency ensures stakeholders can critically evaluate the fairness, accountability, and reliability of algorithmic processes, thereby fostering trust between organizations and society. Among Asian countries, transparency has emerged as both a guiding principle and challenge, given the complexity of AI technologies and varying regulatory contexts across the region.

Singapore is widely recognised as a regional leader in promoting transparent AI practices. The government introduced its Model AI Governance Framework, which mandates explainability in sectors such as finance and healthcare, two domains where AI has direct and profound impacts on citizens' lives. By encouraging organisations to disclose their decision-making logic and provide accessible justifications, Singapore's framework builds confidence in AI adoption while ensuring accountability (World Economic Forum, 2020). This proactive stance positions Singapore as a benchmark for responsible AI deployment in Asia and elsewhere.

Similarly, South Korea has prioritised transparency in its Digital New Deal Programme, a national initiative designed to advance AI integration across industries and public services. In particular, smart city projects have been a focal point, where automated urban management systems must maintain accountability to citizens. Transparent AI governance ensures that city residents understand how decisions regarding traffic flow, energy use, and public safety are made, thereby reinforcing the legitimacy of AI-enabled governance structures (Lee & Lim, 2021).

In India, transparency in AI adoption is gradually gaining traction, particularly in the fintech and government service delivery sectors. With the rapid growth of digital payment systems and credit scoring platforms, ensuring that algorithms remain interpretable is essential for preventing exclusionary practices. However, many firms continue to face significant hurdles owing to the so-called "black box" nature of advanced AI algorithms. This opacity undermines trust and creates challenges for regulatory oversight, as stakeholders

struggle to understand and audit decision-making processes (Reddy, Sharma, & Gupta, 2022).

Japan's approach to transparency is deeply embedded in its Society 5.0 vision, which envisions a fusion of advanced technologies and social well-being. The industrial automation, robotics, and manufacturing sectors are increasingly adopting AI tools designed to remain interpretable by both workers and citizens. By maintaining decision-making transparency, Japan underscores its commitment to ensuring that technology serves as a partner to humans rather than as a replacement, reflecting both its cultural values and long-term governance priorities (Sano, 2020).

In contrast, China represents a more complex case study. The country has rapidly advanced in AI adoption across multiple domains, from e-commerce to urban planning, and has positioned itself as a global leader in AI innovation. However, it faces international criticism for the opacity of its surveillance-driven systems, which often lack accountability and are not easily explained or understood. Although these applications have boosted efficiency, they have raised ethical concerns regarding privacy and governance. Nonetheless, some Chinese firms are experimenting with XAI models, particularly in healthcare and education, suggesting a gradual shift toward more transparent practices in specific sectors (Ding, 2021).

In summary, although transparency is increasingly acknowledged as an essential feature of responsible AI adoption, its implementation varies significantly across Asia. Singapore and Japan have institutionalised transparency within their national strategies; South Korea has integrated it into urban development projects; India struggles with algorithmic opacity despite promising initiatives; and China faces global scrutiny while beginning to explore explainable solutions. This diversity illustrates that transparency in HCAI is not merely a technical issue but also a societal and governance challenge that reflects each country's political, cultural, and institutional priorities.

6.3 Inclusivity in Human-Centric AI Adoption Across Asian Countries :

Inclusivity is a core principle of human-centric artificial intelligence (HCAI), which ensures that AI systems reflect the diversity of the population and avoid reinforcing historical or structural biases. By embedding inclusivity into AI design and governance, organisations can create technologies

that are equitable, accessible, and representative of diverse cultural, linguistic, and demographic realities. However, the degree to which inclusivity is prioritised and implemented varies across Asian contexts, reflecting each nation's unique social challenges and policy orientations.

Singapore has been at the forefront of embedding inclusivity in AI adoption in recent years. Recognising its multicultural and multilingual society, the government and industry stakeholders have developed initiatives that emphasise diverse datasets, ensuring that AI applications capture the lived experiences of various ethnic and linguistic groups. This is particularly evident in healthcare, financial services, and public administration, where AI-driven systems are calibrated to avoid disadvantaging minority groups. These practices reflect a deliberate national strategy to balance technological advancement and social harmony, consistent with Singapore's broader governance philosophy (Tan, 2021).

In South Korea, inclusivity has been integrated into AI education and recruitment platforms as part of broader innovative strategies. The country emphasises minimising gender bias and regional disparities in AI systems. For example, AI-powered recruitment tools have been designed to reduce the risk of discrimination against women or applicants from less industrialised regions and countries. Similarly, inclusivity is advanced through educational reforms that ensure equitable access to AI literacy across demographics, preparing a wider cross-section of society to participate in and benefit from the AI-driven economy (Lee & Lim, 2021).

One prominent example is the deployment of agricultural AI tools that provide localised insights to farmers. These systems deliver information on crop yields, pest control, and weather predictions in local languages, helping to bridge the knowledge gaps between urban and rural areas. These initiatives empower smallholder farmers and enhance their food security. However, challenges remain, particularly uneven access to digital infrastructure, which limits the full inclusivity of the benefits of AI. Rural populations often face connectivity issues, exacerbating the digital divide despite promising applications (Reddy, Sharma & Gupta, 2022).

In Japan, inclusivity is strongly tied to demographic realities, particularly an aging population. The adoption of AI in eldercare robotics reflects a deliberate effort to design solutions that support

older citizens and their caregivers. These technologies address inclusivity by catering to a specific demographic and preserving the dignity, autonomy, and quality of life of older adults. Japan's emphasis on inclusivity within eldercare demonstrates how societal needs can shape AI priorities, aligning with its Society 5.0 vision of technology serving all segments of society (Sano, 2020).

In contrast, China presents a more complex scenario. Conversely, its rapidly expanding AI ecosystem increasingly recognises the importance of inclusivity in areas such as healthcare, where diverse populations require adaptable and equitable AI systems. However, surveillance-driven practices often undermine these efforts. The use of AI tools for monitoring and control has raised ethical concerns, particularly regarding equitable representation and the potential reinforcement of systemic biases against minority populations. This tension illustrates the contradiction between state priorities and the broader principle of inclusivity in AI governance (Creemers, 2022).

Therefore, inclusivity in HCAI adoption across Asia reflects a spectrum of practices. Singapore and South Korea actively embed inclusivity into policy frameworks and organizational practices, whereas India focuses on rural empowerment, despite infrastructural constraints. Japan's inclusive approach is shaped by its demographic challenges, emphasising elder care as a national priority. While innovating rapidly, China faces criticism for its surveillance systems, which often compromise inclusivity. Collectively, these cases demonstrate that inclusivity is not only a technical feature of AI but also a reflection of societal values, governance priorities, and structural inequalities within each national context.

6.4 Ethical Governance of Human-Centric AI Adoption Across Asian Countries:

Ethical governance plays a pivotal role in ensuring that artificial intelligence (AI) systems are designed, deployed and monitored in accordance with societal values and ethical standards. It encompasses policies, oversight mechanisms, and accountability structures that prevent the misuse of AI while promoting fairness, transparency, and trust. According to the OECD (2021), ethical governance of AI requires a delicate balance between fostering innovation and safeguarding human rights, a challenge that manifests differently across Asian contexts.

Singapore has emerged as a leader in embedding ethical governance into the AI ecosystem. The country has established clear corporate governance guidelines that encourage organizations to set up dedicated AI ethics boards and implement internal review processes. These initiatives reflect Singapore's holistic approach, where ethical oversight is integrated into broader corporate governance structures rather than being treated as an afterthought. For instance, the Model AI Governance Framework not only guides companies to ensure transparency and fairness but also formalises accountability by recommending the creation of internal committees responsible for monitoring compliance (World Economic Forum 2020). This framework has allowed Singapore to set regional standards for aligning AI innovations with human-centric values.

South Korea has similarly advanced ethical governance by embedding it into its national strategy. The government's emphasis on AI safety and data governance is evident in the Digital New Deal and related policies, which aim to establish responsible practices across industries in South Korea. By promoting guidelines on data protection, algorithmic safety, and sector-specific standards, Korea ensures that ethical governance is not left solely to private companies but is a shared responsibility across the public and private sectors (OECD, 2021). This coordinated effort reflects South Korea's recognition that governance structures must evolve with technology adoption to maintain public trust.

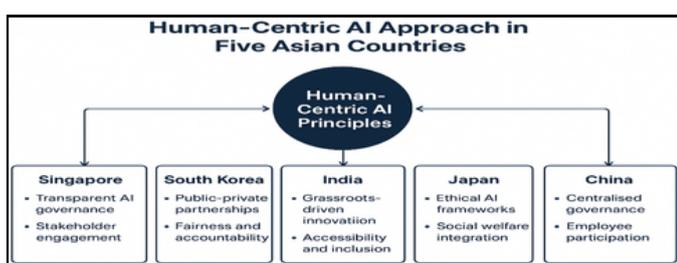
In contrast, India faces significant hurdles in institutionalising ethical governance. Despite being home to a vibrant AI start-up ecosystem, its governance structures remain fragmented, and only a limited number of organisations have adopted formal ethical AI frameworks. According to PwC (2023), while some private firms, particularly in the financial and technology sectors, have begun experimenting with internal governance models, the absence of comprehensive national legislation weakens accountability. Furthermore, the inconsistent enforcement of data protection regulations exacerbates ethical concerns, especially in sectors such as fintech, healthcare, and government service delivery. India's case highlights the challenges faced by developing economies in balancing rapid innovation with slower governance reforms.

Japan adopts a distinct approach to ethical governance, embedding it deeply into corporate and

national policies. Guided by its Society 5.0 vision, Japan positions AI as a collaborator or partner rather than a replacement for human labour and decision-making. Ethical governance is not only regulatory but also cultural, reflecting societal values that prioritise harmony, respect for human dignity, and collective well-being. Companies are encouraged to integrate ethical considerations into every stage of AI development, ensuring that technologies serve societal needs while mitigating the risk of exploitation and exclusion (Sano, 2020). This approach highlights Japan's proactive efforts to humanise technological progress.

Meanwhile, China presents a more complex and often controversial picture. Despite articulating ambitious AI strategies and investing heavily in governance frameworks, China often prioritizes state interests and political objectives over human-centric values. Although guidelines encouraging ethical AI development exist, they are frequently overshadowed by AI applications in surveillance, censorship, and social control. This creates tension between innovation and ethical governance, as efforts to expand AI adoption are sometimes at odds with the principles of inclusivity, transparency, and accountability (Ding, 2021). Simultaneously, some sectors, particularly healthcare and education, are beginning to explore more human-centred governance practices, indicating gradual progress in certain domains.

These variations in ethical governance depicted in the above five Asian countries underline the fact that ethical governance is shaped not only by technological capacity but also by political structures, cultural contexts and institutional maturity. To achieve truly human-centric AI, organisations across Asia must continue to strengthen accountability frameworks while ensuring that governance systems are transparent, inclusive and aligned with ethical principles.



Flow Diagram 2: Human Centric AI approach in 5 Asian Countries

Objective 2: Evaluating the Impact of Human-Centric AI Adoption on Organisational Productivity:

Artificial Intelligence (AI) is rapidly reshaping organisational processes across Asia; however, the question of how human-centric AI (HCAI) adoption influences productivity remains crucial. Human-centric AI emphasises the ethical, transparent, and inclusive deployment of AI, ensuring that technological efficiency is balanced with fairness and workforce well-being (Floridi & Cowsls, 2019). This objective seeks to evaluate the impact of HCAI adoption on organisational productivity, with a particular focus on four outcomes: efficiency, innovation, decision-making, and workforce empowerment. To contextualise the analysis, five Asian economies—Singapore, South Korea, India, Japan, and China—were examined.

1. Efficiency Gains through Human-Centric AI:

- Efficiency improvements are among the most direct effects of AI adoption. By automating repetitive tasks and streamlining workflows, AI enables organisations to reduce costs and improve output quality. In Singapore, the government's Smart Nation initiative has encouraged businesses to use explainable AI systems in healthcare and finance to optimise services without compromising accountability (World Economic Forum, 2020). For example, AI-assisted hospital scheduling systems have reduced patient wait times while maintaining transparency in the allocation process.
- In South Korea, manufacturing companies deploy AI-powered robotics under strict governance standards, enhancing productivity while protecting worker safety (OECD, 2021). Similarly, India has leveraged AI in logistics and agriculture, where inclusive AI platforms improve smallholder farmers' access to credit and market forecasts, balancing efficiency with equity (Reddy et al., 2022).
- Japan's Society 5.0 vision integrates AI with human values, where efficiency gains in supply chain management are aligned with societal goals, such as sustainability (Sano, 2020). China's extensive AI deployment in e-commerce has boosted operational efficiency, although concerns about opaque algorithms highlight the tension between efficiency and transparency (Ding, 2021).

2. Innovation through Human-Centric AI:

- The innovation capacity is significantly enhanced when AI is adopted responsibly. South Korea invests heavily in AI R&D, especially in semiconductors and smart cities, where human-centric design fosters innovation ecosystems while addressing inclusivity challenges (Lee & Lim, 2021). Singapore promotes “responsible AI sandboxes” that encourage firms to experiment with AI while adhering to ethical governance frameworks and striking a balance between innovation and trust (World Economic Forum, 2020).
- India, with its vibrant start-up ecosystem, demonstrates how inclusive AI innovations can target local problems, such as language translation tools and low-cost healthcare diagnostics. These not only drive innovation but also empower marginalised communities (Reddy et al., 2022). In Japan, innovation in robotics for elder care aligns with demographic realities and ethical caregiving obligations (Sano, 2020). China’s innovation is largely state-driven, with AI powering advances in financial technology, urban planning, and biotechnology. However, debates surrounding governance and surveillance raise questions about the long-term sustainability of such innovations under human-centric ideals (Creemers, 2022).

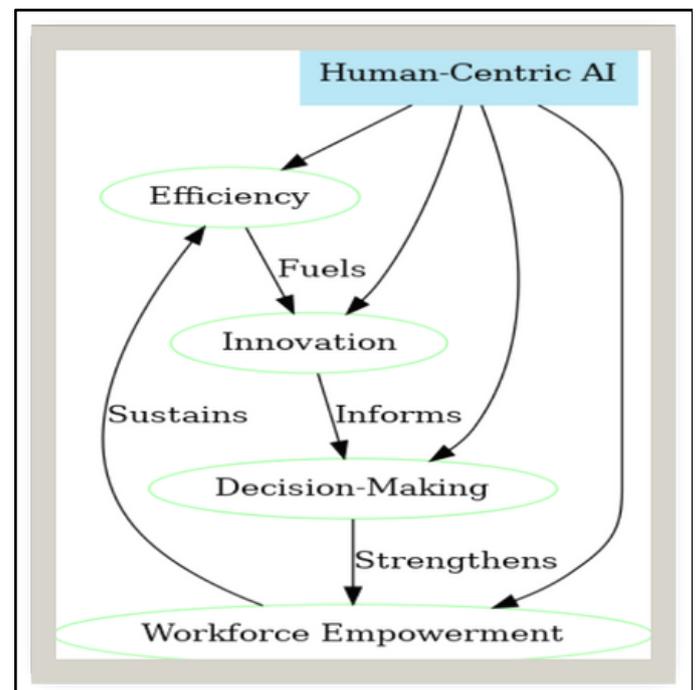
3. Improved Decision-Making:

- Human-centric AI enhances decision-making by providing explainable insights instead of opaque predictions. Singapore requires AI systems used in finance to provide justifiable reasoning, which improves trust and accountability in decision-making (World Economic Forum, 2020). South Korea has adopted AI-based decision-making tools in smart city governance, emphasising transparency and inclusivity to foster citizen trust (Lee & Lim, 2021).
- In India, AI-driven credit scoring models increasingly incorporate fairness checks to prevent the exclusion of marginalised groups, thereby improving the inclusivity of financial decision-making (Reddy et al., 2022). Japanese firms apply AI in corporate governance and quality assurance, where decisions are made collaboratively between humans and AI, reinforcing the principle of “AI as a partner, not a replacement” (Sano, 2020). Despite deploying AI extensively in decision-making processes from e-commerce to policing, China often faces

criticism for its lack of transparency, which undermines stakeholder trust, even when efficiency gains are evident (Ding, 2021).

4. Workforce Empowerment:

- A central concern of HCAI is its effect on human workers’ health. In Singapore, workforce upskilling programs, such as AI Singapore’s training initiatives, ensure that employees are not displaced but retrained for higher-value roles (Tan, 2021). South Korea emphasises worker safety in AI-driven industries by integrating exoskeleton robotics and monitoring systems that empower employees to perform more effectively.
- India faces significant workforce skill gaps; however, inclusive AI training programs have been launched to empower rural populations with digital literacy and AI-enabled employment opportunities (PwC, 2023). Japan focuses on empowering its ageing workforce through AI-driven assistive technologies that enhance productivity while preserving dignity (Sano, 2020). Conversely, China’s AI labour practices are mixed; while firms benefit from empowered digital workforces, surveillance-based management practices may undermine employee autonomy and empowerment (Creemers, 2022).

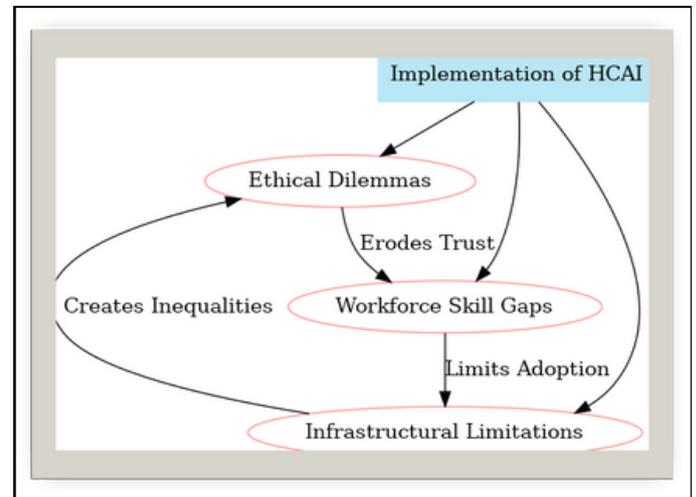


Flow Diagram 3: Impact of HCAI on Organisational Productivity

Objective 3: Challenges and Tensions in Implementing HCAI:

- Ethical Dilemmas:** Ethical dilemmas are among the most pressing challenges in HCAI implementation. For instance, Singapore has made strides in establishing ethics boards for AI governance; however, recruitment algorithms often risk perpetuating biases (World Economic Forum, 2020). South Korea's smart city initiatives face criticism for insufficient safeguards against privacy intrusions, while India continues to struggle with ensuring that marginalised populations are not excluded from AI-enabled services (Reddy et al., 2022). Japan, despite its cultural emphasis on human-AI partnerships, faces sensitive consent issues in eldercare robotics (Sano, 2020). In contrast, China has received global criticism for prioritising surveillance systems over human rights, creating tensions between rapid innovation and ethical responsibility (Ding, 2021). These examples highlight how unaddressed ethical dilemmas erode public trust in AI.
- Workforce Skill Gaps:** The effectiveness of HCAI depends heavily on a workforce adequately trained to design, manage, and monitor AI technologies. Although Singapore and South Korea are investing heavily in reskilling programs, small and medium-sized enterprises (SMEs) often lag (Lee & Lim, 2021). India faces the most acute skill gaps, particularly in rural areas, where workers lack the technical literacy needed to adopt AI tools effectively (PwC, 2023). Japan's shrinking labour force further limits the pool of AI-skilled professionals, while China, despite producing large numbers of AI graduates, is criticised for focusing more on technical competencies than embedding human-centric design principles (Creemers, 2022). These gaps hinder inclusive growth and perpetuate inequality in the AI workforce.
- Infrastructural Limitations:** Robust infrastructure is crucial for scaling HCAI across industries; however, disparities persist in the selected Asian countries. In Singapore, smaller firms struggle with the financial and technical burdens of complying with the governance standards. Although South Korea is technologically advanced, it faces bureaucratic silos that slow down cross-sector collaboration (OECD, 2021). India continues to be constrained by a weak digital infrastructure, particularly in rural regions, limiting the scalability of HCAI solutions

(Reddy et al., 2022). Japan grapples with regulatory frameworks that lag behind technological innovation, whereas China's highly centralised control stifles organisational flexibility and innovation in applying human-centric standards (Ding, 2021). These infrastructural barriers not only delay adoption but also create inequalities in the distribution of AI benefits across societies.



Flow Diagram 4: Challenges in Implementing HCAI

7. Implications

The findings of this study have several important implications for organisations, policymakers, and society. By adopting human-centric artificial intelligence (HCAI), Asian economies can ensure that technological progress complements rather than undermines human well-being. A comparative analysis of Singapore, South Korea, India, Japan, and China demonstrates that while national contexts shape distinct adoption pathways, shared principles, such as transparency, inclusivity, and ethical governance, remain central to sustainably and socially responsible productivity gains.

7.1 Implications for Practice

For organisations, the study highlights that productivity outcomes are not solely derived from automation and efficiency but are significantly enhanced when AI adoption is aligned with human values. Embedding explainability into AI systems fosters trust, while inclusive design reduces the risk of bias and expands market reach by catering to diverse user groups. Workforce empowerment, particularly through reskilling and participatory decision-making, is critical for mitigating fears of displacement and building long-term employee engagement. Firms that invest in ethical AI practices are likely to gain reputational legitimacy, enhancing their customer trust and long-term competitiveness.

7.2 Implications for Policy

At the policy level, governments across Asia must recognise that governance frameworks cannot be limited to technical standards alone and must incorporate cultural and social considerations. National AI strategies should integrate stakeholder consultations, digital literacy programs, and cross-sector collaboration to ensure that AI systems serve broader developmental goals. Policymakers can also draw from Indigenous philosophical traditions, such as the Vedic emphasis on harmony and the collective good, to develop ethical frameworks that resonate with cultural values. This approach not only enhances local acceptance but also positions Asia as a global leader in ethical AI governance.

7.3 Implications for Research

For scholars, this study highlights the need for deeper empirical investigations into the implementation of human-centric AI at the organisational level. Much of the available research remains conceptual or policy-driven, with a limited focus on workforce experiences and sector-specific challenges. Future studies could adopt mixed-method approaches that combine organisational case studies, employee surveys, and longitudinal data to capture the dynamic relationship between AI adoption and productivity in the long term. Moreover, integrating non-Western philosophical traditions into the discourse on AI ethics opens new avenues for culturally grounded theories of technology governance.

8. Conclusion

Human-centric AI (HCAI) is not merely a technological strategy; it is a moral and organisational compass for the digital age. The comparative analysis across five Asian economies in this study highlights that the real measure of AI's success is not how quickly it automates tasks but how effectively it amplifies human dignity, equity and collective progress. Singapore and South Korea demonstrate that productivity can be enhanced when ethical governance is institutionalised. Japan illustrates that cultural resonance and demographic needs can guide AI's social acceptance of AI. India underscores the promise and challenges of grassroots inclusivity in the face of infrastructural constraints. China exemplifies both the opportunities and ethical dilemmas of state-driven innovations.

Together, these cases illuminate a central insight: the productivity dividend of AI is inseparable from the maturity of governance systems and the values that societies choose to uphold. The Human-Centric AI Productivity Framework (HCAI-PF) developed in this study advances the theory by showing that inclusivity, transparency, and accountability are not ethical luxuries but rather structural prerequisites for sustainable digital transformation.

As organisations and policymakers continue to navigate the AI frontier, the path forward is clear: productivity without ethics is fragile, but productivity with human centricity is enduring. By embedding human values at the heart of AI, Asia offers the world not only a technological blueprint but also a cultural and ethical beacon for shaping the future of work and society.

9. References

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