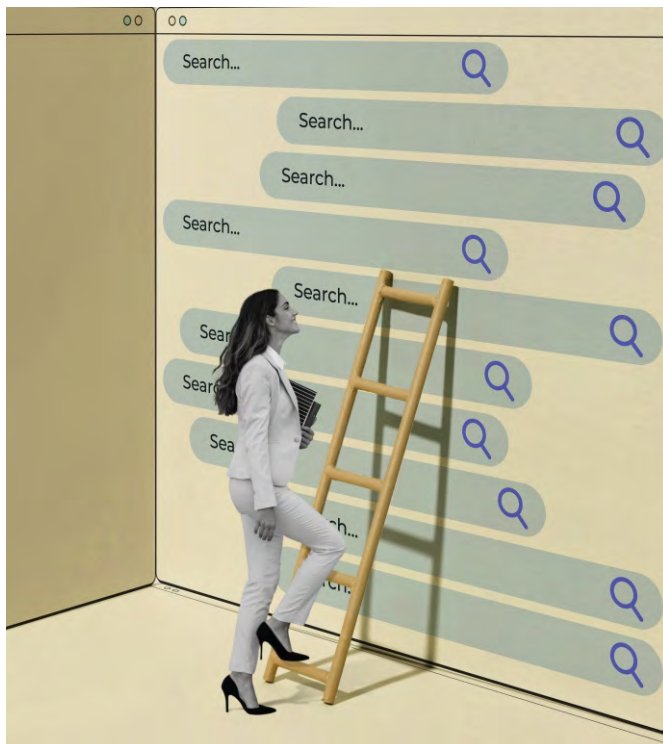


When Design Shapes Access: Making Digital Marketplaces More Inclusive

Dhruven Zala^{i*}

ⁱS.P. Jain Institute of Management and Research

*Corresponding author, dhruven.zala@spjimr.org



Problem of practice

Digital marketplaces have become crucial for micro entrepreneurs, providing them with access to customers and enabling business expansion. Yet benefits are uneven: minority or disadvantaged sellers often receive fewer orders or rank lower in search results, even when their quality matches or exceeds others. A recent [study](#) by Alyakoob and Rahman highlights these discriminations on digital platforms, focusing on the case of Black-origin hosts on Airbnb¹. Their findings reveal how platform design choices, such as certification, can help mitigate discrimination. Extending their insights, this article examines why such disparities occur and persist. It outlines design solutions – certification systems, algorithmic adjustments, and capacity building initiatives – that leaders shaping the design, governance and growth of digital marketplace can use to build a more inclusive platform

¹ The article 'Market Design Choices, Racial Discrimination, and Equitable Microentrepreneurship in Digital Marketplaces' by Mohammed Alyakoob and Mohammed Rahman, featured in Volume 72, Issue 3 of *Management Science*, talks about how quality certification in digital marketplaces reduces racial discrimination and advances equity for Black origin microentrepreneurs

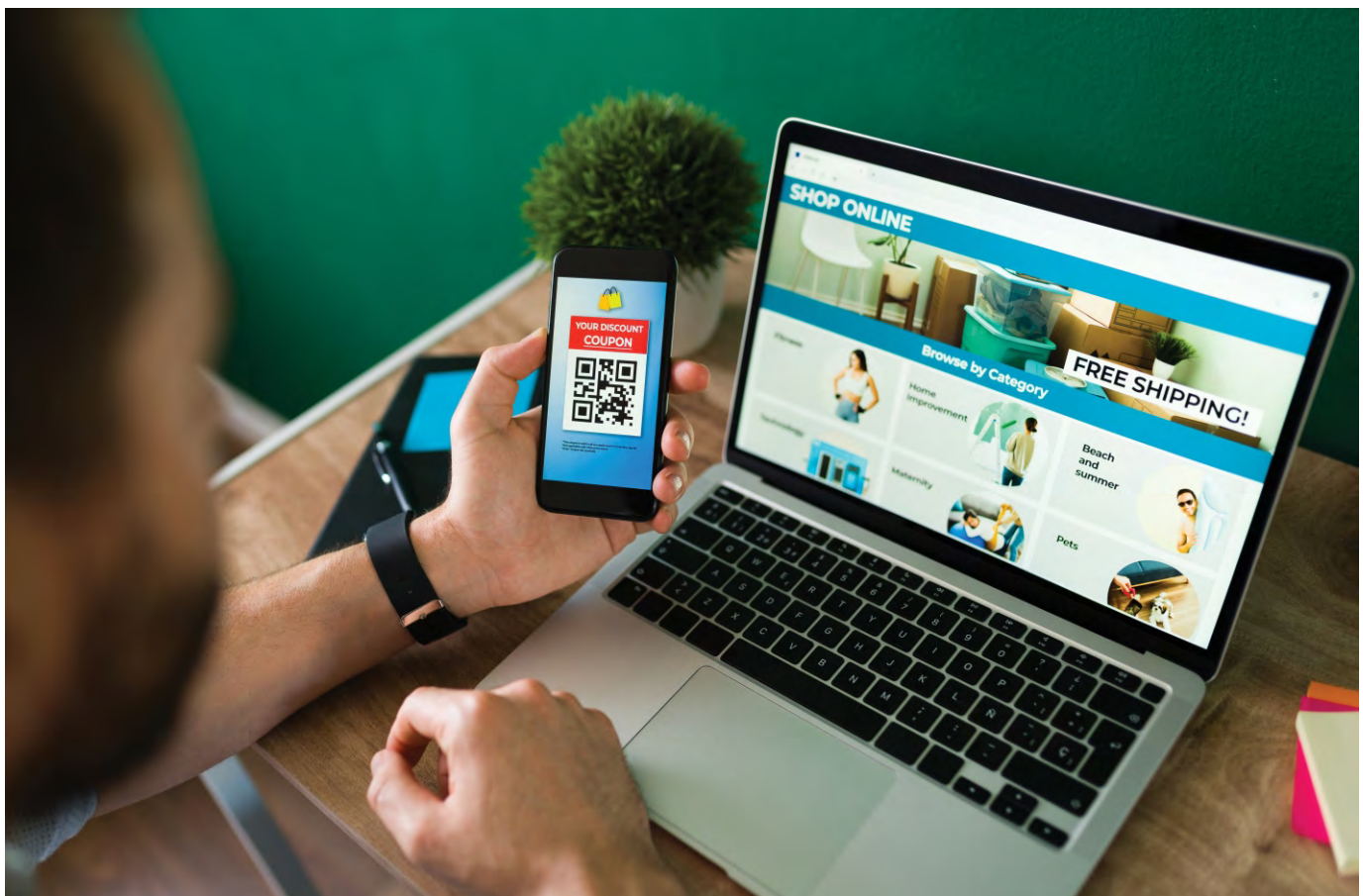
The unequal access

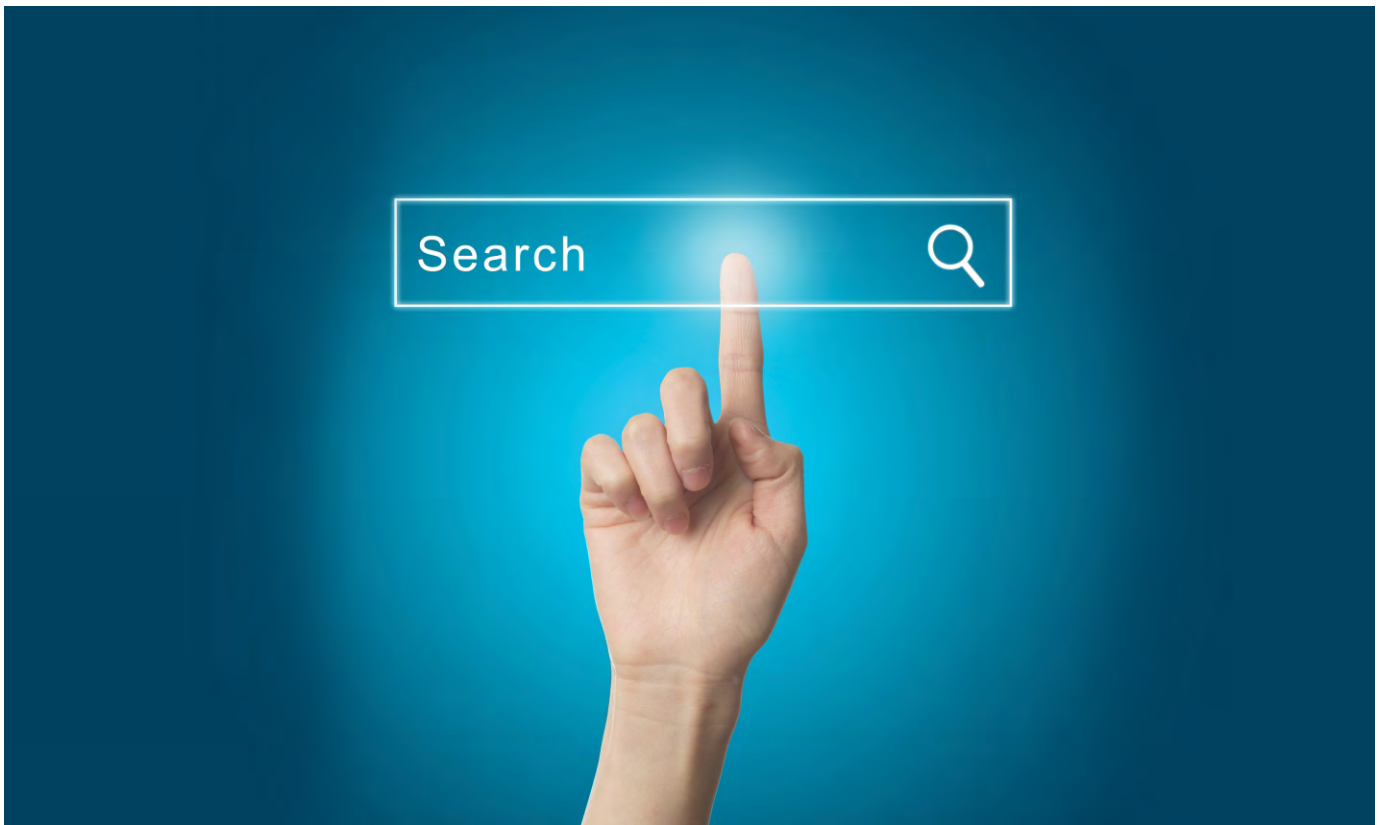
Platform design does more than organise information. It determines who gets seen, chosen or overlooked. What appears as a neutral algorithm or ‘objective’ ranking often amplifies existing advantages and marginalises newcomers and the underrepresented participants. Visibility compounds for some and vanishes for others. This is not just a fairness issue but also a strategic business concern. Underrepresented entrepreneurs lose income and exit, reducing the platform’s supply, diversity and innovation.

Real-world evidence reinforces this dynamic. In the US, the study by Alyakoob and Rahman found that ‘Superhost’ certification on Airbnb increased bookings by 17% for Black hosts, but only 7% for non-Black hosts, indicating the same platform feature can yield uneven benefits across different seller groups. Another study found that hosts with distinctly Asian names suffered approximately 20% drop in guest reservations during periods of heightened anti-Asian sentiment.² Complementing these findings, research further illustrates how platform features can produce unintended effects. Airbnb’s ‘Instant Book’ option increases occupancy significantly for black and female hosts who forgo screening, even though their average

review ratings decline. This suggests that relaxing certain screening constraints can help offset some disadvantages.³ Similarly, evidence on the Airbnb Plus badge reveals that while this certification raises the booking rates by about 6.8% on average, non-certified neighbouring listings experience temporary drops, and the service disproportionately boosts platform revenues in certain areas.⁴ Together, these studies highlight that seemingly neutral features such as badges, screening or premium certifications can disproportionately affect marginalised hosts, emphasising the need for intentional, inclusive platform design.

In India, Deloitte-FICCI reported that nearly three-quarters of purchase decisions are now influenced by digital marketplaces, yet users increasingly question the credibility of online reviews and search results.⁵ These reports underscore a vital opportunity– the indispensable value of digital marketplaces. It also highlights the persistent challenge of inclusivity. Evidence suggests that even skilled microentrepreneurs receive fewer clicks or bookings if they belong to minority groups.⁶ In India’s diverse context, similar biases may emerge around caste, region, language, or religion.





Why sellers stay invisible

Customers in digital marketplaces face an excessive volume of information, product listings, ratings, reviews and pricing details. This creates *information overload*. To cope with this cognitive burden, users rely on heuristics such as favouring well-known sellers, highly rated products, or visually appealing profiles. While these shortcuts simplify decision-making, they also create predictable patterns that platform designers increasingly leverage through recommender systems and interface design.

Most recommendation algorithms prioritise popularity signals, amplifying what is already visible. Although this approach improves short-term engagement and reduces search costs, it also generates self-reinforcing feedback loops in which highly visible sellers receive disproportionate attention, while good or comparable alternatives remain hidden. This dynamic is called ‘statistical discrimination’, where group-level signals or stereotypes substitute for individualised assessment. As a result, platforms do not merely reflect preferences; they shape them, leading to persistent visibility gaps that distort competition and limit diversity.

For microentrepreneurs, this statistical discrimination translates into a frustrating reality. Despite improving quality, pricing or service, many remain buried in rankings dominated by incumbents with established

review histories. Small gains yield limited visibility, pushing providers to rely on discounts or paid features, often at the cost of margins. Over time, this discourages participation, reduces diversity and weakens innovation—ultimately leaving platforms with fewer choices and less competitive ecosystems.

The causes of seller invisibility also shape the limits of the solutions. As Alyakoob and Rahman show, design choices such as certification can reduce discrimination by improving trust and visibility for disadvantaged sellers. But when these interventions are costly, optional, or unevenly accessible, they can reinforce the same inequalities they were meant to solve. Therefore, it is important to evaluate which tool broadens opportunity and which merely redistributes advantage.

What works & can backfire

When confronted with these dilemmas, managers often address them by adopting solutions such as badges or partnerships with community groups. However, the effectiveness of these methods varies based on the situation. A minor adjustment to a badge system or algorithm might help reduce inequalities, but it could just as easily make them worse. Evidence from recent studies and experiments highlights how these approaches can have differential impacts (see *Table 1*).

Table 1: Platform design solutions' outcomes and risks

Solution	Industry examples	Risks	Measurable outcomes
Quality signals/ Certification & Badges	Airbnb Plus; Amazon 'Fulfilled by Amazon'/ FBA badges; regional 'Trusted Vendor' programs and quality seals used by Indian marketplaces and local government MSME schemes	Badges often demand costly upgrades, photos or logistics that favour well-capitalised sellers. When criteria are opaque or expensive, smaller or rural providers are excluded, creating a 'quality gate' that narrows supply and drives out marginal sellers. ^{7,8,9}	Studies show that Airbnb Plus certification increases weekly booking rates for Plus listings by ~6.8% on average, translating into approximately USD 3,100 additional revenue per certified property annually, even after inspection fees. Non-Plus nearby listings experienced short-term declines of ~1.4–1.9% in bookings. ¹⁰
Algorithmic tools & fairness audits	Fairness-aware recommender proposals (e.g. FairRec) and platform experimentation to rebalance exposure; position/social-influence estimation studies in search and ranking	Algorithms that rebalance exposure can help, but: (1) disadvantaged sellers may use them less due to digital or financial gaps; (2) audits depend on limited platform data and may miss bias ; (3) fixes reducing short-term engagement often get dropped . ^{11,12,13,14}	Fairness testing and mitigation frameworks like FairRec significantly enhance the detection of hidden fairness issues in deep recommender systems, achieving up to ~95% fairness testing accuracy in identifying disadvantaged groups. While the literature reports improvements in fairness metrics (e.g. exposure distribution), precise before-and-after exposure ratios on real platforms remain limited.
Endorsements, peer feedback & same-group effects	Science Advances/ Airbnb work showing same-race endorsements and how in-group signals reduce discrimination in some conditions; peer endorsements and 'verified reviewer' programs on major platforms	Same-group endorsements can build trust for marginalised providers, but overreliance risks reinforcing segmentation and limiting cross-group discovery. Such systems are also prone to gaming or perceived bias if moderation is weak. ^{15,16}	Evidence from Airbnb research indicates that same-race endorsements reduce racial discrimination, thereby improving the booking probability for marginalised hosts (e.g. increasing match likelihood). However, the exact magnitude depends on context and dataset. ¹⁷
Partnerships & capacity building	Amazon Black Business Accelerator (US, USD 150M commitment); Amazon programs + corporate supplier diversity initiatives; India: government MSME schemes, state training initiatives and industry-platform partnerships	Grants, mentorship and capacity building can help underrepresented sellers invest in badges or paid tools. But without careful targeting, well-connected firms may capture funds, PR programs may miss the most excluded, and such initiatives rarely scale to millions of micro entrepreneurs. ^{18,19,20}	Amazon's Black Business Accelerator has supported participating Black-owned sellers with financial credits and business support, resulting in reported revenue growth of up to 50% for some participants and, in other cases, sales that were tripled over one year, according to small-business testimonials in the program's first-anniversary report. These outcomes reflect increased visibility and optimisation support for participating businesses, though platform-wide impact remains context-specific. ²¹
Transparency, metrics & public reporting	Fairwork India Ratings (benchmarks of fairness on platforms); platform dashboards showing visibility/retention by subgroup; public auditing partnerships	Transparent metrics can drive accountability but are vulnerable to gaming and backlash. Publishing group-level data raises privacy and legal risks, and platforms may resist sharing negative results. Reporting without clear remediation plans can expose issues without solving them. ^{22,23}	Public transparency initiatives such as Fairwork India Ratings have driven improvements in accountability for reported working conditions and, in some contexts, spurred platform reforms within 12–18 months. Concrete impacts include the adoption of fairness benchmarks and policy updates by participating platforms.

Source: Compiled by the author from various sources

Putting it into practice

Building equitable digital platforms begins with recognising and measuring the problem. Platforms must collect data on group differences across geography, language, gender, caste and other protected attributes while ensuring privacy, because what gets measured gets managed. Rigorous evaluation is equally vital. Statistical analysis can reveal whether interventions such as new badges, visibility boosts or algorithm tweaks genuinely help disadvantaged groups, ensuring that well-intentioned initiatives deliver the intended results.

Accessibility must also be central. Gaps in infrastructure and digital literacy can exclude smaller sellers, making targeted support such as subsidised fees, localised training, and outreach programs vital. At the same time, algorithms require continuous tuning. Platforms should actively ensure that visibility is not concentrated among already popular sellers, so that capable new entrants also have a fair chance of being discovered.

Finally, equity solutions must adapt to local contexts. A design that works in the U.S. may not suit India or Southeast Asia, where caste, language, and rural–urban divides present distinct challenges, and where data protection laws and infrastructure limitations shape what is feasible. *Table 2* summarises the implementation considerations for building an inclusive platform.

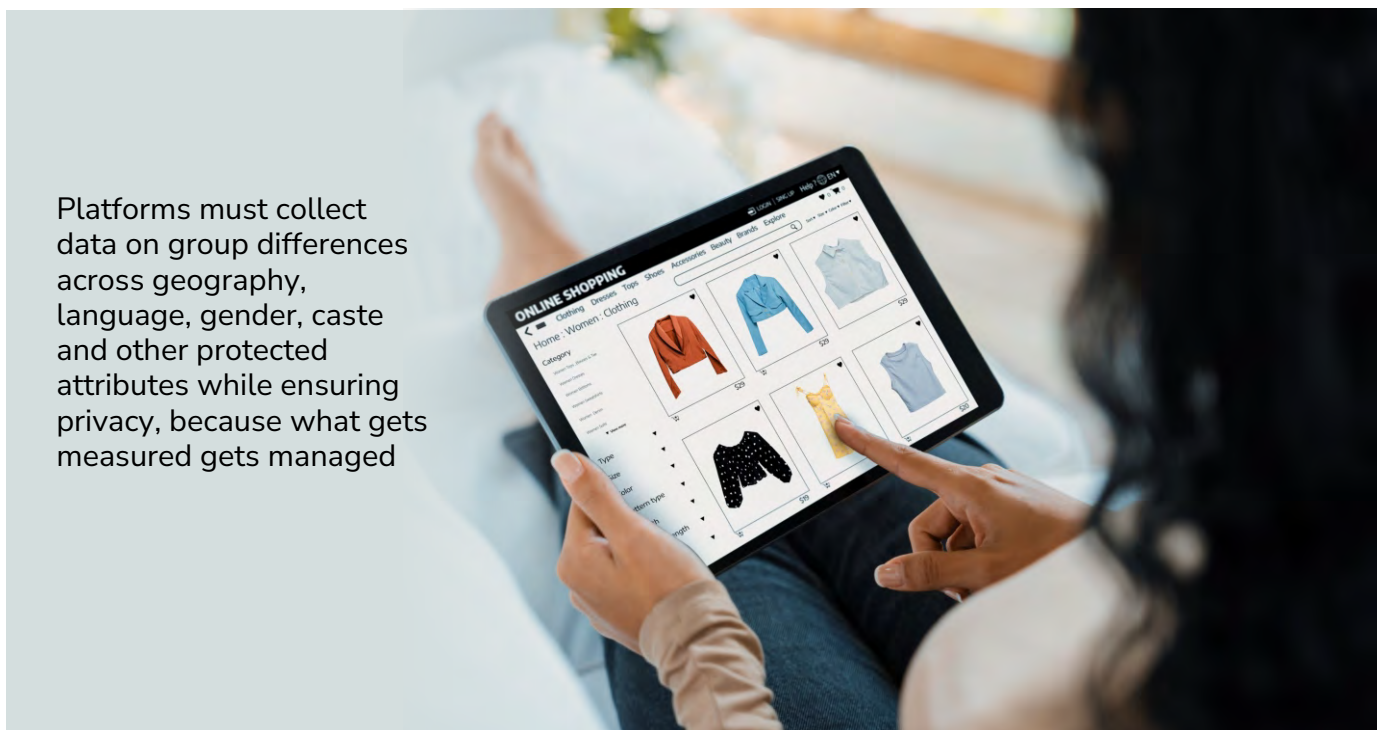
Sample metrics to capture:

1. Visibility: Frequency of certified vs non-certified sellers in search results.
2. Transaction Lift: Percentage increase in bookings or sales post-certification.
3. Retention: Duration certified minority sellers remain active on the platform.
4. Consumer Diversity: Growth in new buyer segments resulting from inclusivity efforts.

Table 2: Lessons for implementation

Lesson	Action
Inclusive signals	Make certification accessible to all sellers
Platform bias	Acknowledge that rankings, reviews, and badges carry bias
Tech & evaluation	Use dashboards, audits, AI, and statistical methods to detect and fix bias
Partnerships	Train and support underrepresented entrepreneurs
Visibility	Ensure diverse endorsements reduce simplistic heuristics

Source: Created by authors



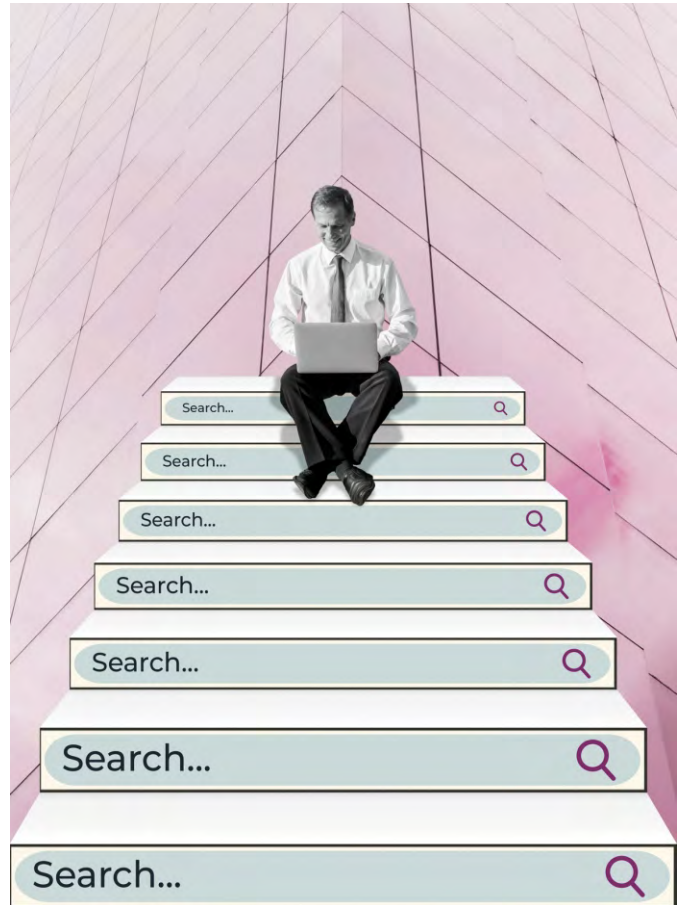
Platforms must collect data on group differences across geography, language, gender, caste and other protected attributes while ensuring privacy, because what gets measured gets managed

Case for inclusive design

Digital platforms are often positioned as engines of access and opportunity, yet design choices around rankings, reviews and badges can just as easily exclude as include. Importantly, the same tools that generate inequities can also be redesigned to correct them. For managers, fairness is not charity; it is strategy. Inclusive platform design strengthens innovation, trust, and long-term competitiveness in an increasingly crowded digital economy.

This implies that platform leaders and managers should:

- **Treat fairness as a core performance metric.** Monitor equity and visibility indicators with the same rigour as engagement, churn, or revenue metrics.
- **Design for balanced visibility.** Adjust ranking and recommendation systems to prevent excessive concentration and ensure that capable new entrants can gain exposure.
- **Make inclusivity features the default.** Embed fairness mechanisms into standard platform architecture rather than offering them as optional add-ons.
- **Align robust incentives for long-term ecosystem health.** Reward practices that promote diversity, experimentation and sustainable participation among sellers and service providers.
- **Communicate progress transparently.** Publish regular reports on marketplace diversity and visibility outcomes to build trust with users and partners.



By adopting these practices, platform leaders can act as effective stewards of digital ecosystems, unlocking untapped entrepreneurial potential while reinforcing competitive advantage.

Dhruven Zala is Assistant Professor in the Information Management and Analytics department at SPJIMR. You can reach out to him at dhruven.zala@spjimr.org

This article may contain links to third-party content, which we do not warrant, endorse, or assume liability for. The author's views are personal

We welcome your thoughts – drop us a note at mpi@spjimr.org

REFERENCES

- ¹ Mohammed Alyakoob and Mohammad Rahman, 'Market Design Choices, Racial Discrimination, and Equitable Microentrepreneurship in Digital Marketplaces', *Management Science* 72, no. 3 (2025): 1878–903, <https://doi.org/10.1287/mnsc.2023.01717>.
- ² Michael Luca et al., 'The Evolution of Discrimination in Online Markets: How the Rise in Anti-Asian Bias Affected Airbnb During the Pandemic', *Marketing Science* 45, no. 1 (2024): 108–22, <https://doi.org/10.1287/mksc.2023.0112>.
- ³ Mayya, R., Ye, S., Viswanathan, S., & Agarwal, R. (2021). Who Forgoes Screening in Online Markets and Why? Evidence from Airbnb1. *Management Information Systems Quarterly*, 45(4), 1745–1776. <https://doi.org/10.25300/MISQ/2021/15335>
- ⁴ Dewan, S., Kim, J., & Nian, T. (2023). Economic Impacts of Platform-Endorsed Quality Certification: Evidence from Airbnb1. *Management Information Systems Quarterly*, 47(3), 1353–1368. <https://doi.org/10.25300/MISQ/2022/16958>
- ⁵ Suneera Tandon, 'Online Marketplaces Influence 73% of Purchases: Deloitte-Ficci Report', *Industry, Mint*, 20 August 2025, <https://www.livemint.com/companies/digital-shopping-trends-india-online-marketplaces-report-deloitte-ficci-india-ecommerce-11755686160657.html>.
- ⁶ Luca et al., 'The Evolution of Discrimination in Online Markets'.
- ⁷ Airbnb, 'Airbnb Plus Overview', 2018, <https://news.airbnb.com/wp-content/uploads/sites/4/2018/02/Airbnb-Plus-Overview--ENGLISH.pdf>.
- ⁸ Mickey Toogood, 'Amazon FBA vs FBM: Which Is Right for You?', *Amazon Selling Partner Blog*, 18 October 2024, <https://sell.amazon.com/blog/fba-vs-fbm>.
- ⁹ Ministry of Micro, Small and Medium Enterprises, Government of India, *Annual Report 2023-24 (2024)*, <https://msme.gov.in/sites/default/files/FINALMSMEANNUALREPORT2023-24ENGLISH.pdf>.
- ¹⁰ The UCI Paul Merage School of Business, *Airbnb Plus Boosts Bookings and Earnings, Study Finds*, 21 February 2023, <https://merage.uci.edu/news/2023/02/Airbnb-Plus-Boosts-Bookings-and-Earnings%2C-Study-Finds.html>.
- ¹¹ Huizhong Guo et al., 'FairRec: Fairness Testing for Deep Recommender Systems', arXiv:2304.07030, preprint, arXiv, 14 April 2023, <https://doi.org/10.48550/arXiv.2304.07030>.
- ¹² Nima Kordzadeha and Maryam Ghasemaghaei, 'Algorithmic Bias: Review, Synthesis, and Future Research Directions', *European Journal of Information Systems* 31, no. 3 (2021), <https://doi.org/10.1080/0960085X.2021.1927212>.
- ¹³ Catherine Tucker and Juanjuan Zhang, 'How Does Popularity Information Affect Choices? A Field Experiment', *Management Science* 57, no. 5 (2011), <https://doi.org/10.1287/mnsc.1110.1312>.
- ¹⁴ Ata Jameei Osgouei et al., 'Estimating Position and Social Influence Effects in Online Search', *Marketing Science* 45, no. 1 (2025), <https://doi.org/10.1287/mksc.2023.0392>.
- ¹⁵ Minsu Park et al., 'Fighting Bias with Bias: How Same-Race Endorsements Reduce Racial Discrimination on Airbnb', *Science Advances* 9, no. 6 (2023): eadd2315, <https://doi.org/10.1126/sciadv.add2315>.
- ¹⁶ Benjamin Edelman and Michael Luca, 'Digital Discrimination: The Case of Airbnb.com', Working Paper, no. No. 14–054 (January 2014), <https://www.hbs.edu/faculty/Pages/item.aspx?num=46073>.
- ¹⁷ 'Airbnb Revenue and Usage Statistics', *Business of Apps*, 2026, <https://www.businessofapps.com/data/airbnb-statistics/>.
- ¹⁸ Dave Clark, 'Amazon Commits \$150 Million to Empower Black-Owned Businesses', *Amazon News*, 15 June 2021, <https://www.aboutamazon.com/news/small-business/amazon-commits-150-million-to-empower-black-entrepreneurs>.
- ¹⁹ SIDBI, *Understanding Indian MSME Sector: Progress and Challenges (2025)*, https://www.sidbi.in/uploads/Understanding_Indian_MSME_sector_Progress_and_Challenges_13_05_25_Final.pdf.
- ²⁰ Ministry of Micro, Small and Medium Enterprises, Government of India, *Annual Report 2023-24*.
- ²¹ 'Small Businesses Share Their Experience with Amazon's Black Business Accelerator', *Amazon News*, 22 August 2022, <https://www.aboutamazon.com/news/small-business/small-businesses-share-their-experience-with-amazons-black-business-accelerator>.
- ²² Fairwork, *Fairwork India Ratings 2024: Labour Standards in the Platform Economy (Bangalore, India; Oxford, United Kingdom, 2024)*, https://fair.work/wp-content/uploads/sites/17/2024/10/Fairwork_India_Report_2024.pdf.
- ²³ Di Jin et al., 'A Survey on Fairness-Aware Recommender Systems', *Information Fusion* 100 (December 2023), <https://doi.org/10.1016/j.inffus.2023.101906>.

Article Information:

Date article submitted: Sep 14, 2025

Date article accepted: Mar 19, 2026

Date article published: Mar 31, 2026

Images courtesy : www.freepik.com