Continuing Discrimination in the times of technology: Women, Work, Algorithms and Law in India

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ABSTRACT: *Human societies are discriminatory. So, it has been an unrelenting effort to eliminate what divides us. While there have been leapfrog developments in this regard, we need to consider newer challenges now that technology is taking over public and private spaces. The author, in this article, discusses gender-based algorithmic discrimination in workplaces and argues that there is an urgent need to enforce laws for regulating algorithmic discrimination. India is in a precarious position. It has been consistently faring poorly when it comes to the gender gap in work. It lacks a comprehensive and codified anti-discriminatory law; and lacks laws to deal with algorithmic discrimination. The withdrawn Personal Data Protection Bill, 2019, the Draft Digital Data Protection Bill, 2022 and the Digital Personal Data Protection Act, 2023, do not effectively deal with gender discrimination. The parliament is now considering introducing the Digital India Act to give a much-needed overhaul to the country's antiquated technology laws. The article focuses on the current labour and technology laws, the withdrawn bills, the Digital Personal Data Protection Act, and the discussion around the Digital India Act to argue that there is a need to specifically consider algorithmic gender discrimination. Further, it culls out the lessons that India can learn from the global developments in this field.*

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I. INTRODUCTION

Artificial Intelligence ('AI') and Algorithmic Decision-Making ('ADM') have been in use for quite some time now, even thoughthe tropes of 'new' and 'transformative' are still regularly used. While each new development is portrayed along these narratives in the media, the term AI itself was coined in 1956 by John McCarthy, in the now famous *all-men, all-white* conference. He defined it as 'the science and engineering of making intelligent machines'.[1] Broadly speaking, AI refers to machines that can mirror human reasoning while making decisions[2] and thus automating decisions that are made by humans. AI is not one technology, but rather a field with subfields such as machine learning, robotics, language processing and deep learning.[3] These technologies work on algorithms. An algorithm can be defined as 'a procedure for solving a mathematical problem in a finite number of steps that frequently involves repetition of an operation'.[4]

Today, employers are increasingly looking at AI-based tools for recruitment. Specifically, they are turning to machine learning ('ML')-based employee-selection tools that use algorithms either to assist human decision-making or replace it in favour of ADM.[5] This push to ADM has

[1]John McCarthy, 'What Is Artificial Intelligence' (*John McCarthy* 12 November 2007) <http://jmc.stanford.edu/articles/whatisai.html> accessed 20 August 2023.
[2]Eileen Donahoe and Megan MacDuffee Metzger, 'Artificial Intelligence and Human Rights' (2019) 30 Journal of Democracy 115.
[3] 'Human Rights in the Age of Artificial Intelligence' (*Access Now* 2018) < www.accessnow.org/cms/assets/uploads/2018/11/AI-and-Human-Rights.pdf> accessed 20 August 2023.
[4]'Algorithm Definition & Meaning - Merriam-Webster' (*Merriam-Webster)* <https://www.merriam-webster.com/dictionary/algorithm> accessed 12 October 2022.
[5] Cathy O'Neil, *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy* (1st edn, Penguin Random House 2016).

largely been on the rationales of reducing or eliminating human biases from decision-making,[6] efficiency, accuracy, and optimization of human systems.[7]

This supposed impartiality is built on the historical phenomenon of 'trust in numbers'.'[8] AI and associated technologies mine for patterns from large data sets called *big data.*[9] As has been described by various scholars, big data's distinctiveness lies in its *volume, value, variety, velocity and veracity.*[10] This historical trust in numbers is exacerbated by automation bias when concerning digital technologies. There is an increased trust in the results from these systems due to the perceived rationality and objectivity of computers and data.[11] The proliferation of the internet has been one of the major drivers behind big data and subsequent developments in the field of AI.[12] Internet activity along with devices that use internet and internet-embedded infrastructures, all generate data that is stored and processed. By its very nature big data involves the collection of personal data,[13] usage of proxy data,[14] finding discernible patterns[15] and processing digital footprints.

Critical literature has discussed the multiple reasons for such bias. The principal amongst them is the quality of data used to train algorithmic systems.[16] Substandard quality of data, incomplete data, unavailable data, proxy data, or biased dataset can lead to algorithmic systems learning to be biased. Critical scholars have proved bias in multiple fields in which AI and ADMs are used, for instance welfare,[17] finance,[18] facial recognition technology (FRT),[19]

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[6] Kimberly A Houser, 'Can AI Solve the Diversity Problem in the Tech Industry: Mitigating Noise and Bias in Employment Decision-Making' (2019) 22 Stanford Technology Law Review 290; Chamorro-Premuzic Tomás and Reece Akhtar, 'Should Companies Use AI to Assess Job Candidates?' (2019) 17 Harvard Business Review.
[7] David Beer, 'The Social Power of Algorithms' (2017) 20 Information, Communication & Society 1.
[8] Yaron Ezrahi, *Imagined Democracies Necessary Political Fictions* (1st edn, Cambridge University Press 2012).
[9] Melanie Mitchell, *Artificial Intelligence A Guide for Thinking Humans* (1st edn, Penguin Random House 2020).
[10] Rob Kitchin, *The Data Revolution: Big Data, Open Data, Data Infrastructures and Their Consequences* (SAGE 2014).
[11] See generally for example, Eirini Ntoutsi and others, 'Bias in Data-driven Artificial Intelligence Systems—An Introductory Survey' (2020) 10 WIREs Data Mining and Knowledge Discovery <https://onlinelibrary.wiley.com/doi/10.1002/widm.1356> accessed 22 August 2023; O'Neil (n 5).
[12] See generally for example, O'Neil (n 5); Jathan Sadowski, *Too Smart: How Digital Capitalism Is Extracting Data, Controlling Our Lives, and Taking over the World* (1st edn, MIT Press 2020).
[13]Betsy Anne Williams, Catherine F Brooks and Yotam Shmargad, 'How Algorithms Discriminate Based on Data They Lack: Challenges, Solutions, and Policy Implications' (2018) 8 Journal of Information Policy 78.
[14]O'Neil (n 5).
[15]ibid.
[16] Mitchell (n 9).
[17] Virginia Eubanks, *Automating Inequality: How High-Tech Tools Profile, Police and Punish the Poor* (St Martin's Press 2018).
[18] Frank Pasquale, *The Black Box Society: The Secret Algorithms That Control Money and Information* (1st edn, Harvard University Press 2016).
[19] Joy Buolamwini and Timnit Gebru, 'Gender Shades: Intersectional Accuracy Disparities in Commercial Gender Classification' (1st Conference on Fairness, Accountability and Transparency, 2018) 15.

recruitment,[20] and so on. AI systems are socio-technical in their nature. They are not developed or deployed in social isolation. Consequently, technologies will be as impacted by society, as society is by technology.[21] Human biases have found their way into these socio-technical systems.[22]

In the paper, I specifically discuss gender-based discrimination in the workplace caused due to digital technologies its position in India. The discussion is focused on the formal sector as the presence of discrimination through technology for employment is arguably more plausible in this sector currently. Further, in the Indian context, gender discrimination has multiple facets of caste, class, and language. The article makes generalized arguments in regard to gender. But these arguments need to be understood in the complexity of gender discrimination in India. I repeat my argument, the need for contextualization of digital technology, multiple times throughout the article so as to bring to focus the specific position in India, which does not draw a parallel with its Western counterparts. In the same vein, any law that wants to comprehensively deal with algorithmic systems needs to focus on this complexity.

I briefly discuss algorithmic gender bias in Section II and posit effective methods to deal with the algorithmic bias in Section 2. Further, I discuss current global developments in building unbiased algorithmic systems to infer if there are lessons that India can learn from these developments. Specifically, I explore Denmark's initiatives in the data ethics seal framework, the Brazilian Artificial Intelligence Bill 2020, the European Union's (highly contentious)) Artificial Intelligence Act, and New York City's Local Law on audit. In the next section, I assess the situation in India by examining its statutory laws that deal with gender-based discrimination in the workplace and the Information Technology Act, 2002. Then, I dive into the withdrawn Personal Data Protection ('PDP Bill') Bill, 2019, the Digital Personal Data Protection Act, 2023 ('DPDP Act') and the discussions around Digital India Act ('DIA') to analyze if these effectively provide for gender-biased algorithmic systems.

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[20] Dena F Mujtaba and Nihar R Mahapatra, 'Ethical Considerations in AI-Based Recruitment' (IEEE International Symposium on Technology and Society, Medford, November 2019) 1.

[21] Beer (n 7).

[22] See for example, Alina Köchling and Marius Claus Wehner, 'Discriminated by an Algorithm: A Systematic Review of Discrimination and Fairness by Algorithmic Decision-Making in the Context of HR Recruitment and HR Development' (2020) 13 Business Research 795; Joshua Kroll and others, 'Accountable Algorithms' (2017) 165 University of Pennsylvania Law Review 633; James Manyika, Jake Silberg and Brittany Presten, 'What Do We Do About the Biases in AI?' (2019) Harvard Business Review <https://hbr.org/2019/10/what-do-we-do-about-the-biases-in-ai> accessed 22 August 2023.

While legislation is an important tool to restrict algorithmic biases, it cannot be the sole tool. India needs to develop a stronger public discourse around algorithmic biases. It also needs to imbibe transparency when it comes to implementing these systems and empower organizations to question the workings of algorithmic systems. Globally, influential work in this area has been spearheaded by news organizations, NGOs, and such.[23] This trend needs to be followed in India.[24] The discourse around AI is more euphoric in India. For instance, an international perception survey ranked Indians with perceptions as 'exciting, futuristic and mostly good for society'.[25] Having a young, enthusiastic population allows an easy acceptance of technology in India.[26] Further, because there is and will be a significant knowledge gap between the public and the entities utilizing these algorithmic systems, there is a need to empower a capable outside actor that can police such algorithmic systems.[27] In the last section, I argue that it is necessary to create a separate specialized statutory public body to overlook this wide proliferation of ADMs in India.

At the outset, it is important to note the rationale for analyzing a withdrawn bill. The PDP Bill was introduced in the Indian Parliament in 2019 and instantly drew scrutiny from privacy advocates as well as technology companies. It was subsequently withdrawn by the government. In 2023, the Parliament introduced and passed the DPDP Bill, 2023. A data protection law had been roughly four years in the making and gave us an opportunity to think more thoroughly about *what all needs* to be legislated upon. Following its announcement to release a more comprehensive legislation,[28] the DPDP Act, 2023 is more streamlined but, as I will argue, it

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[23] See for example, ProPublica is working in the US and is credited for some highly important and influential work, especially their work on COMPAS. Julia Angwin and others, 'Machine Bias' (*ProPublica*, 23 May 2016) < www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing> accessed 21 August 2021. Or for instance, UK-based NGO, Foxglove has been successful in restricting the UK Home Office from using racist algorithms in the visa process. Alice Tidey, 'UK to Stop Using "racist" Visa Algorithm after Legal Challenge' (*euronews*, 4 August 2020) <www.euronews.com/my-europe/2020/08/04/uk-to-stop-using-racist-visa-algorithm-after-legal-challenge> accessed 20 August 2023.
Further, while writing this article, the whole Wire-Meta fiasco again brought into focus the need, *firstly,* for Indian journalism to assess and critically report on technological development and, *secondly,* to build more robust and trustworthy investigative journalist criteria for itself. This becomes even more problematic under the current political environment in India. The blow this incident will have on independent journalism in India cannot be exaggerated.

[24] That is not to overlook the work that organizations such as Internet Freedom Foundation have been carrying out in India.

[25] Patrick Gage Kelley and others, 'Exciting, Useful, Worrying, Futuristic: Public Perception of Artificial Intelligence in 8 Countries' (AAAI/ACM Conference on AI, Ethics, and Society, 2021) <http://arxiv.org/abs/2001.00081> accessed 21 August 2023.

[26] Ayona Datta, 'A 100 Smart Cities, a 100 Utopias' (2015) 5 Dialogues in Human Geography 49.

[27] Cecil Abungu, 'Algorithmic Decision-Making and Discrimination in Developing Countries' (2022) 13 Journal of Law, Technology & The Internet 41.

[28] Soumyarendra Barik, 'Explained: Why the Govt Has Withdrawn the Personal Data Protection Bill, and What Happens Now' *The Indian Express* (New Delhi, 4 August 2022)

still does not deal with the issues at hand. Further, the Parliament has begun the discussions around the DIA which will replace the current IT Act. The DIA aims to bring 'global standard cyber laws' for India.[29] As I will argue, this overhaul in the technology legislation in India specifically needs to focus on the discriminatory risks that AI will bring forth in India.

II. GENDER-BASED BIAS IN ALGORITHMS

A. Algorithmic systems, gender bias and India

Today, many aspects of our lives are actively being governed by algorithms. Critical scholarly literature now proves that algorithmic systems not only replicate human biases but also amplify them.[30] Thus, the ramification of this on gender discrimination needs to be discussed. One of the UN Sustainable Development Goals is to achieve gender equality and empower all women and girls.[31] Algorithmic systems have been found to be gender-biased in recruitment,[32] job adverts,[33] online translations,[34] credit cards,[35] FRT[36] and so forth. A UNESCO study has

<https://indianexpress.com/article/explained/explained-sci-tech/personal-data-protection-bill-withdrawal-reason-impact-explained-8070495/> accessed 14 October 2022.

[29] Ministry of Electronics and Information Technology, 'Proposed Digital India Act, 2023' (India, 9 March 2023) <https://www.meity.gov.in/writereaddata/files/DIA_Presentation%2009.03.2023%20Final.pdf> accessed 11 May 2023.

[30]Kirsten Lloyd, 'Bias Amplification in Artificial Intelligence Systems' (AAAI FSS-18: Artificial Intelligence in Government and Public Sector, Virginia, 2018) <https://arxiv.org/abs/1809.07842> accessed 22 August 2023.Also see, for example, Arshad Ahmed and others, 'The Role of Biased Data in Computerized Gender Discrimination' (GE@ICSE '22: Proceedings of the Third Workshop on Gender Equality, Diversity, and Inclusion in Software Engineering, May 2022) 6. The authors discuss gender bias in datasets in various domains such as healthcare, STEM, education and so forth which arises due the fact that all these sectors (illustrative in nature) are plagued with gender discrimination in our societies.

[31]'United Nations: Gender Equality and Women's Empowerment' (*United Nations Sustainable Development*) < www.un.org/sustainabledevelopment/gender-equality/> accessed 20 August 2023.

[32] Köchling and Wehner (n 22). Also see, for example, the now legendary Amazon recruitment tool bias - Jeffrey Dastin, 'Insight - Amazon Scraps Secret AI Recruiting Tool That Showed Bias against Women' *Reuters* (10 October 2018) < www.reuters.com/article/amazon-com-jobs-automation-idINKCN1MK0AH> accessed 20 August 2023. Amazon's recruitment tool was trained on historical employment data. This historical data reflected the past recruitment trends at Amazon that leaned more towards male applicants. Resultant, the AI tool learnt to penalize female applicants.

[33] Byron Spice, 'Questioning the Fairness of Targeting Ads Online' (*Carnegie Mellon University*, 7 July 2015) < www.cmu.edu/news/stories/archives/2015/july/online-ads-research.html> accessed 22 August 2023.

[34] Marcelo OR Prates, Pedro H Avelar and Luís C Lamb, 'Assessing Gender Bias in Machine Translation: A Case Study with Google Translate' (2020) 32 Neural Computing and Applications 6363.

[35] Taylor Telford, 'Apple Card Algorithm Sparks Gender Bias Inquiry' *The Washington Post*, (11 November 2019) < www.washingtonpost.com/business/2019/11/11/apple-card-algorithm-sparks-gender-bias-allegations-against-goldman-sachs/> accessed 22 August 2023.

[36] Buolamwini and Gebru (n 19).

reported that AI-powered voice assistants with female voices such as Siri, Alexa and Cortana are perpetuating harmful gender biases.[37]

The above-mentioned are only a few instances of algorithmic gender-based bias. They easily illustrate the creeping in and amplification of human biases through algorithmic systems. Another recurrent theme is the ability to tweak these algorithmic systems to eliminate bias.[38] This indicates that there is a need to either have unbiased data or de-bias the data itself.[39] The existing human infrastructures, utilized to generate big data, often end up reflecting the historical and structural injustices that creep into data and subsequently into ADMs (because they are trained by this data).[40] Presumably, as long as there is some direct human interpretation to any aspect of AI life-cycle, there will be a risk of bias.[41] This becomes a graver issue for nations like India, where entire communities might be missing from the datasets,[42] and might lack access to the Internet to even create data.[43] The existing caste[44] and class discrimination[45] might worsen gender discrimination.[46]

The recently published Digital Divide report by Oxfam India is indicative of the digital divide that is present in India which is exacerbated by factors like gender, caste, religion, and location (rural and urban).[47] India faces numerous challenges when it comes to gender parity. As per the World Economic Forum's ('WEF') Gender Gap Index, India is placed at the 112th position

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[37]Mark West, 'I'd Blush If I Could: Closing Gender Divides in Digital Skills through Education' (*UNESCO*, 2019) <https://unesdoc.unesco.org/ark:/48223/pf0000367416> accessed 22 August 2023. .

[38] See, for example, Google has tweaked its algorithms when faced with gender-bias results. James Kuczmarski, 'Reducing Gender Bias in Google Translate' (*Google*, 6 December 2018) <https://blog.google/products/translate/reducing-gender-bias-google-translate/> accessed 22 August 2023.

[39] Ahmed and others (n 30).

[40] See, for example, Jon Kleinberg and others, 'Discrimination in the Age of Algorithms' (2018) 10 Journal of Legal Analysis 113.

[41] Abungu (n 27).

[42] Kate Crawford, 'The Hidden Biases in Big Data' (*Harvard Business Review*, 1 April 2013) <https://hbr.org/2013/04/the-hidden-biases-in-big-data> accessed 22 August 2023.

[43] Mayank Jain, 'India's Internet Population Is Exploding but Women Are Not Logging In' (*Scroll.In*, 26 September 2016) <https://scroll.in/article/816892/indias-internet-population-is-exploding-but-women-are-not-logging-inia> Kate Crawford, 'The Hidden Biases in Big Data' (*Harvard Business Review*, 1 April 2013) <https://hbr.org/2013/04/the-hidden-biases-in-big-data> accessed 22 August 2023.

[44] Anant Kamath and Vinay Kumar, 'In India, Accessible Phones Lead to Inaccessible Opportunities' (*The Wire*, 24 November 2017) <https://thewire.in/caste/india-accessible-phones-still-lead-inaccessible-opportunities> accessed 22 August 2023.

[45] Nithya Sambasivan and others, 'Re-Imagining Algorithmic Fairness in India and Beyond', (FAccT '21: Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency, March 2021)) < https://dl.acm.org/doi/10.1145/3442188.3445896> accessed 22 August 2023.

[46]Fred H Cate and Viktor Mayer-Schönberger, 'Notice and Consent in a World of Big Data' (2013) 3 International Data Privacy Law 67.

[47] Apoorva Mahendru, Mayurakshi Dutta and Pravas Ranjan Mishra, 'Digital Divide: India Inequality Report 2022' (*Oxfam India*, 5 December 2022) < www.oxfamindia.org/knowledgehub/workingpaper/india-inequality-report-2022-digital-divide> accessed 22 August 2023.

amongst 153 nations.[48] It is distressing to note that India has slipped to the 112th position in the year 2019, 14 notches lower than its position in the year 2006 when WEF published its first report.[49] According to the report, India is one of the most poorly performing nations in the economic, health and survival indexes, whereas its performance on the education and political empowerment indexes is more positive.[50]

The above-mentioned Oxfam report provides that while the majority of population does not have access to computers, this possibility is 7-8% higher for the Schedule Castes ('SC') and the Schedule Tribes ('ST').[51] Half the Indian population lacks access to the Internet,[52] with women and lowered caste people disproportionately affected.[53] There is a gap of 30% between men and women having phones.[54] There is a further gender gap in digital access (with women using digital services less often and less intensively),[55] access to devices, documentation, and mobility.[56] These are further impacted by other socio-familial-cultural factors.[57]

All these factors directly point to the wide gender gap for even access to technology for women in India. Data practices are highly granular and are utilized to provide personalized experiences on the internet (for instance the Facebook Newsfeed, Twitter Newsfeed, advertisements). They are also being used to *socially-sort* for various purposes.[58] Further, this data is also used to train

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[48] 'Global Gender Gap Report 2020' (*World Economic Forum*, 16 December 2019) < www.weforum.org/reports/gender-gap-2020-report-100-years-pay-equality/> accessed 22 August 2023.

[49] ibid 30.

[50] ibid.

[51] ibid 15.

[52] Sambasivan and others, 'Re-Imagining Algorithmic Fairness in India and Beyond'(n 45).

[53] Nithya Sambasivan and others, 'Non-Portability of Algorithmic Fairness in India' (34th Conference on Neural Information Processing Systems, Vancouver, 2020) <https://arxiv.org/pdf/2012.03659> accessed 22 August 2023.

[54] ibid 17.

[55] Alexandra Tyers-Chowdhury and Gerda Binder, 'What We Know about the Gender Digital Divide for Girls: A Literature Review' (*UNICEF*, 2022) < www.unicef.org/eap/media/8311/file/What%20we%20know%20about%20the%20gender%20digital%20divide%20for%20girls:%20A%20literature%20review.pdf> accessed 22 August 2023.

[56] Jonathan Donner, Nimmi Rangaswamy and Molly Steenson, '"Express Yourself"/"Stay Together": Tensions Surrounding Mobile Communication in the Middle-Class Indian Family' in James E Katz (ed), *Handbook of Mobile Communication Studies* (MIT Press 2008).

[57] Kim M Thompson and Anindita Paul, '"I Am Not Sure How Much It Will Be Helpful for Me": Factors for Digital Inclusion among Middle-Class Women in India' (2016) 86 The Library Quarterly 93.

[58] See generally for example, Kitchin (n 10); Jonathan Taplin, *Move Fast and Break Things: How Facebook, Google, and Amazon Have Cornered Culture and What It Means For All Of Us* (Pan Macmillan 2017); Kitchin Rob, *Data Lives: How Data Are Made and Shape Our World* (Policy Press 2021); Viktor Mayer-Schonberger and Kenneth Cukier, *Big Data: A Revolution That Will Transform How We Live, Work and Think* (John Murray 2013). Also see, for example, Sandra Wachter, 'The Theory of Artificial Immutability: Protecting Algorithmic Groups under Anti-Discrimination Law' (2022) 97 Tulane Law Review (forthcoming). The author in this paper refers to '*incomprehensible*' groups; groups that are created via algorithmic classification that have not been recognised in formal anti-discrimination legislatures. While 'gender' is a formally recognised group under anti-discrimination

AI. When a section of society is excluded from even access to technology, they will also be excluded from contributing to these data-sets. This often leads to over-fitting of big data profiles with upper/upper-middle/middle-class men that generally have the access and the ability to create data.[59]

Existing human infrastructure in India, which reflects the historical injustices, is utilized for these newer systems. Data practices, as discussed above, reflect these historical injustices. When used in training AI systems and informing ADMs, they will very likely exacerbate the current divide.

In June 2018, NITI Aayog released a discussion paper on the national Strategy for Artificial Intelligence'.[60] The paper identifies certain key areas for AI deployment in India including healthcare, education, smart cities and agriculture.[61] Subsequently, a national portal on AI backed by the Ministry of Electronics and Information Technology ('MeitY') of the Indian Government was launched.[62] The primary objective of the portal is to be a one-stop platform for all AI-related advancements in India.[63] The Union Cabinet has now approved INR 3,660 crore for a national mission on cyber-physical system technologies that involves extensive use of AI, machine learning, deep learning, predictive analytics, data science and quantum computing.[64]

This underscores the utmost importance of understanding and dealing with bias in AI. AI technology, as we have already discussed, is fraught with biases. Furthermore, the data available directly impacts the results. 'Unavailability of relevant and robust open clinical data' has been recognized as one of the challenges for AI in India by NITI Aayog.[65] Hence, there have to be practices in place to deal with algorithms reliant on biased data.

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legislatures, what is interesting to note is that algorithmic classification obviously creates even newer groups and the same can then be used as the basis of algorithmic discrimination.

[59] Sambasivan and others, 'Non-Portability of Algorithmic Fairness in India' (n 53).

[60] 'National Strategy For Artificial Intelligence' (*Niti Aayog*, June 2016)<https://indiaai.gov.in/research-reports/national-strategy-for-artificial-intelligence> accessed 22 August 2023.

[61] ibid.

[62] Vishal Chawla, 'Govt Launches AI Website: How Will It Help India's Artificial Intelligence Industry?' (*Analytics India Magazine*, 2 June 2020) <https://analyticsindiamag.com/govt-launches-ai-website-how-will-it-help-indias-artificial-intelligence-industry/> accessed .

[63] ibid.

[64] Kalyan Ray, 'What Is the State of AI in India?' *Deccan Herald* (19 January 2020) <www.deccanherald.com/sunday-herald/sh-top-stories/what-is-the-state-of-ai-in-india-795458.html> accessed 22 August 2023.

[65] NITI Aayog, 'National Strategy For Artificial Intelligence' (n 60).

The following section will briefly look into the gender gap in employment in India and aim to argue how it will be influenced by, and in turn influence, AI and ADMs in India.

B. Algorithmic gender bias, employment, and India

As previously discussed, India experiences a multi-dimensional digital divide that intersects with gender, caste and religion. This is also the case with the employment and labour market, generally. The recent report published by Oxfam India lays out the existing gender discrimination in employment in India.[66] While there has been a general decline in discrimination in access to employment, it is still characterized by a high degree of gender discrimination. Factors like late working hours, travelling to remote areas, harsh working conditions, etc renderwomen less favourable for job applications.[67]

Data projects that, at an aggregate level, a mere 19% of women are engaged in regular/salaried jobs, compared to 60% of men in urban areas. Gender discrimination accounts for 98% of the reason for the employment gap between males and females in urban areas.[68] The gender gap remains alike in urban and rural areas, with only 23.3% of women engaged in rural areas.[69] The gender gap is also evident for women in self-employment and casual work, as well as in earnings across all methods of employment. The report also discusses gender discrimination in accessing credit (specifically agricultural credit).[70]

Considering this and the data presented in the previous section, we can grasp the grim situation it portrays for the labour market- a situation that will be aggravated by technology and its inherent gender bias. These trends indicate that the situation might worsen with ADMs. Both these sections also point to the distinct Indian context of the kind of discrimination that AI can perpetuate in India. Gender is *not* the only discriminating factor, rather gender discrimination is widening due to caste, religion and location of a woman. A woman in an urban area has greater opportunities to access the internet and technology in comparison to a woman in a rural area. And an urban area will still have different struggles for a woman from an upper caste and

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[66] Amitabh Kundu and others, 'India Discrimination Report 2022: Summary Edition' (Oxfam India, 2022) < www.oxfamindia.org/knowledgehub/workingpaper/india-discrimination-report-2022> accessed 22 August 2023.
[67] ibid 28.
[68] ibid 29.
[69] ibid 30
[70] ibid.

a woman from a lowered caste.[71] These factors contextualize gender discrimination in India, a perspective which is not part of the discourses in the global north — where all AI developments are concentrated.[72]

AI is being used extensivey. It is replacing human decisions and human intelligence across domains. Both private and public enterprises are exploring various means to incorporate AI into their operations. Specifically in employment, AI is increasingly being used in the recruitment and hiring processes.[73] AI tools are being used for job adverts, applicant screening, applications sorting, recruitment and predicting the success of applicants in specific job roles.[74] Each such use of AI tools is strife with issues, particularly so in the Indian context.

As has been discussed, there is a substantial gender gap in both access to technology as well as employment in India. This disparity will be reflected in the AI system and its life cycle. While there have been numerous efforts in the global north, where AI tools are developed, to train AI systems on data that are 'blind' to discriminatory practices, such efforts have their own challenges when applied in India. Take, for instance, the fact that a person's last name in India is deployed as a symbol of caste.[75] Caste obviously impacts gender discrimination in India.[76] An AI tool to sort applicants, when trained on such data, can easily learn to replicate caste-based gender discrimination in India. While this discrimination is prohibited in India, unchecked AI systems are likely to bypass such laws and reinforce discrimination.

Different AI tools can have differing discriminatory impacts. If AI tools are used for placing job adverts, they can easily exclude job seekers[77] in India who lack proper access to internet or data profiles[78] that can be targeted. Due to women being historically missing or less involved in the workforce in India, AI tools that are used to sort and screen applicants might assign lower

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[71] See, for example, Mahendru, Dutta and Mishra (n 47); Kundu and others (n 66).
[72] Sambasivan and others, 'Non-Portability of Algorithmic Fairness in India' (n 53)..
[73] See, for example, Natalie Sheard, 'Employment Discrimination by Algorithm: Can Anyone Be Held Accountable?' (2022) 45 University of New South Wales Law Journal 617 < www.unswlawjournal.unsw.edu.au/article/employment-discrimination-by-algorithm-can-anyone-be-held-accountable/> accessed 22 August 2023; Houser (n 6); Köchling and Wehner (n 22).
[74] See generally for example, Sheard (n 73); Samantha Cooey, 'LinkedIn Changes Search Algorithm After Report Suggests Gender Bias' (*Time*, September 2016) <https://time.com/4484530/linkedin-gender-bias-search/> accessed 22 August 2023; Samuel Gibbs, 'Women Less Likely to Be Shown Ads for High-Paid Jobs on Google, Study Shows' *The Guardian* (8 July 2015) < www.theguardian.com/technology/2015/jul/08/women-less-likely-ads-high-paid-jobs-google-study> accessed 22 August 2023; Dastin (n 32).
[75] Sambasivan and others, 'Non-Portability of Algorithmic Fairness in India' (n 53).
[76] Kundu and others (n 66).
[77] Gibbs (n 74); Sheard (n 73).
[78] Anna Hedenus and Christel Backman, 'Explaining the Data Double: Confessions and Self-Examinations in Job Recruitments' (2017) 15 Surveillance & Society 640.

scores and ranks to women applicants compared to their male counterparts.[79] Several proxy data such as names, mobility, location, etc can make AI tools discriminatory.[80] Indian women have faced added layers of discrimination due to factors like security concerns.[81] These can be replicated through AI recruitment processes, where the woman applicant might receive lower scores due to scoring meagerly on societal-cultural factors.

These are all extremely plausible scenarios that need to be considered before the widespread proliferation of AI and ADMs in India. Further, the development of AI is currently concentrated in the global north that does not face similar societal-cultural factors as women in India do. Hence, there is a need to contextualize these developments. The next section will discuss some arguments for dealing with algorithmic bias.

III. DEALING WITH THE BIAS

The previous discussion illustrates how bias can easily transpire in and through algorithmic systems. The current legal regimes must formulate policies, laws, and regulations to deal with the challenges associated with the increasing uptake of AI and ADMs in various domain of public and private life. These socio-technical systems are extremely complex in nature and require a multi-level approach to deal with biases. This approach needs to start with the system's development and remain throughout the lifecycle of the system.

The complexity of these socio-technical systems arises due to several factors. These systems utilise a wide variety of non-contextual data.[82] What I mean by this is that creators might employ data that isn't directly pertinent to the system's purpose to train it. Some categories of these data might be protected under the anti-discrimination laws of a country. In such cases, the system creators would need to train the AI system on other available data, often 'proxy' data.[83] These systems are also claimed to be accessible, meaning the final user may not be an expert on the workings of the system. Moreover, the system's functioning can itself be cryptic

[79] Dastin (n 32).
[80] Sambasivan and others, 'Re-Imagining Algorithmic Fairness in India and Beyond' (n 45); Sheard (n 73).
[81] Kundu and others (n 66).
[82] See generally for example, Kitchin (n 10).
[83] Abungu (n 27); Sheard (n 73).

to the user.[84] And finally, the coding and data of such systems may often beprotected from the public through intellectual properties.[85]

Even before considering the means to effectively deal with bias, the acceptance of bias present in the AI itself is sometimes difficult. While 'data-driven oligarchies like Facebook, Google, Amazon or Uber'[86] are in the best position to consider and debate the ethical issues, they mostly fail to accept their responsibility.[87] Developers of AI will have to play a major role if biased AI is to be eliminated. But the 'self-regulation' by big technology companies has not always led to the best practices, and thus there is an urgent need for ethical and legal regulations of these systems.[88]

There is a considerable amount of discussion in advocating transparent understandings of algorithmic systems to build trust, imbibe accountability in the system, and increase representation in their creation of these systems to address bias. All these three arguments are put-forward while emphasizing the need for regulation throughout the cycle of an algorithmic system. Starting from the design phase through to the use of a system, there is a need to create assessment criteria at each stage. A regular assessment of a system-in-use is also required to assess if it might have learnt to perpetuate bias at a later stage. We can easily compare this to how our legal regimes have matured around vehicles on roads. By law, a regular post-assessment is required after a vehicle has been in use for some time to assess its roadworthiness. Similarly, we need to regularly assess the algorithmic system for its reliability.

A. Transparency and bias

One of the leading arguments to deal with bias is the need for transparency. This isn't a new argument.[89] Private companies have been reluctant to share their algorithms and seek protection

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[84] See generally for example, Ben Green, *The Smart Enough City: Putting Technology in Its Place to Reclaim Our Urban Future* (MIT Press 2019).

[85] Richard H Stern, 'On Defining the Concept of Infingement of Intellectual Property Rights in Algorithms and Other Abstract Computer-Related Ideas' (1995) 23 AIPLA Q.J. 125.

[86] See generally for example, Om Malik, 'Silicon Valley Has an Empathy Vacuum' (*The New Yorker*, 28 November 2016) < www.newyorker.com/business/currency/silicon-valley-has-an-empathy-vacuum> accessed 22 August 2023.

[87] Anjanette H Raymond, Emma Arrington Stone Young and Scott J Shackelford, 'Building a Better Hal 9000: Algorithms, the Market, and the Need to Prevent the Engraining of Bias' (2017) 15 Northwestern Journal of Technology and Intellectual Property 215.

[88] See generally for example, Big tech companies such as Google and Facebook have issued statements in support of government regulation. Some of these can be assessed at 'Public Policy Perspectives' (*Google AI*) <https://ai.google/responsibilities/public-policy-perspectives/> accessed 13 October 2022.

[89] See for example, Paul Schwartz, 'Data Processing and Government Administration: The Failure of the American Legal Response to the Computer' (1991) 43 Hastings Law Journal 1321.

under intellectual property regimes.[90] This 'black box'[91] algorithmic opacity is being contested but paradoxically, the source code of computer systems is illegible to non-experts.[92] AI computational technologies work on such complex data sets that it is humanly impossible to understand how an algorithm came to a particular conclusion.[93] There are also security risks associated with exposing the algorithms of an AI, which makes it more susceptible to hacks.[94] Researchers have also demonstrated that entire algorithms can be stolen based simply on their explanations alone.[95] In this regard, transparency alone may not be the best solution to biased AI.

The Explainable AI movement makes a strong case to move out of this technological gridlock. XAI, (as it is popularly called), favours bringing explainability in algorithmic outputs while ensuring that such explanations should be comprehensible by the public. This will not only help raise trust in these systems but will also allow a critically assessment of whether the results of an algorithmic system are biased.[96] The GDPR makes some inroads with transparency and explainability of data procession and decision-making.[97] The purpose behind it is to provide legal access to data processing activities, which would then assist in building trust in these systems. Transparency in AI systems must facilitate opportunities to render them

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[90] Robert Brauneis and Ellen P Goodman, 'Algorithmic Transparency for the Smart City' (2018) 75 Yale Journal of Law and Technology 103.
[91] Pasquale (n 18).
[92] Kroll and others (n 22).
[93] Raymond, Young and Shackelford (n 87).
[94] Andrew Burt, 'The AI Transparency Paradox' (*Harvard Business Review*, 2019) <https://hbr.org/2019/12/the-ai-transparency-paradox> accessed 22 August 2023.
[95] Smitha Milli and others, 'Model Reconstruction from Model Explanations' (Conference on Fairness, Accountability, and Transparency, Atlanta, 2018) <http://arxiv.org/abs/1807.05185> accessed 22 August 2023.
[96] Wojciech Samek and Klaus-Robert Müller, 'Towards Explainable Artificial Intelligence' in Wojciech Samek and others (eds), *Explainable AI: Interpreting, Explaining and Visualizing Deep Learning* (Springer Cham, 2019).
[97] See for example, Articles 13-15 of the General Data Protection Regulation, 2018. Specifically, Article 22 that prohibits decisions based solely on automated processing, including profiling. The European Court of Justice is currently considering its first case on automated decision-making [*Case OQ v Hesse Commissioner for Data Protection and Freedom of Information* C-634/21]. The case concerns action by a data subject against the credit score calculated by an algorithm predicting the future behaviour of a person. Arguably, the court in this case is taking the view that Art 22 (1) will establish a prohibition of automated decision-making. This landmark judgement can have big implications in the EU when it comes to automated profiling and complementing the upcoming AI Act. See for example, Andreas Hauselmann, 'The ECJ's First Landmark Case on Automated Decision-Making – a Report from the Oral Hearing before the First Chamber' (*European Law Blog*, 20 February 2023) <https://europeanlawblog.eu/2023/02/20/the-ecjs-first-landmark-case-on-automated-decision-making-a-report-from-the-oral-hearing-before-the-first-chamber/> accessed 22 August 2023.

comprehensible, elucidate the reasoning behind their usage, and provide avenues to scrutinize the system's output.[98]

B. Accountability and bias

Algorithms and ML should not solely be viewed from an engineering perspective.[99] They can take decisions that will have an impact on humans, hence a cognitive and human perspective with social considerations is necessary.[100] The second argument for ethical AI is the requirement of human oversight.[101] In a very interesting judgement of *State vs Loomis,* the Wisconsin Supreme Court refused to provide the defendants the source code of the algorithmic system but knowing the risks associated with such systems, cautioned its usage by judges so that the judicial decisions are not just based on algorithmic outputs.[102] So just having a 'human in the loop'[103] will not suffice, a more nuanced approach is needed. The fallacy of 'human on the loop' is the implicit trust that we have in computers, so much so that even experts may venerate them.[104]

Many scholars argue for accountability-by-design for AI systems.[105] A practical approach for such accountability can take the form of regulating AI at both, the pre-decision process level as well as the post-decision level.[106] At the pre-decision level, technologists and computer scientists can review the process and at the post-decision level, governmental or expert level people can review and oversee. A step-by-step review of AI system, that involves experts and other accountable state actors, can lead to transparency as well as accountability of AI.[107] There are complex questions around who needs to be made accountable for these systems.[108] An

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[98] Recently the UK Home Office decided to scrap the usage of its algorithm for visa processing when critics legally challenged it to be racist. Such challenges to AI systems are important and do imbibe a more transparent regime for their implementation, Tidey (n 23).

[99] Danielle Keats Citron and Frank Pasquale, 'The Scored Society: Due Process for Automated Predictions Essay' (2014) 89 Washington Law Review 1.

[100] Celine Castets-Renard, 'Accountability of Algorithms in the GDPR and beyond: A European Legal Framework on Automated Decision-Making' (2019) 30 Fordham Intellectual Property, Media & Entertainment Law Journal 91.

[101] ibid.

[102] See for example, The Wisconsin Supreme Court in the case of *State v Loomis* 881 N.W.2d 749, 2016 held that appropriate warning needs to be given before courts employ predictive tools.

[103] Q.C. van est, J Gerritsen and L. Kool, *Human Rights in the Robot Age: Challenges Arising from the Use of Robots, Artificial Intelligence and Virtual and Augmented Reality* (Rathenau Instituut, Den Haag 2007)

[104] Eubanks (n 17).

[105] Kroll and others (n 22).

[106] ibid.

[107] ibid. Legal regimes already have such processes present in their jurisdictions. For instance, for any drug to be approved by the government, there is a set review process to ascertain that a drug is beneficial and not harmful to the public. A similar structure needs to be laid down for AI systems as well.

[108] See for example, Est and Gerritsen (n 103). Which discusses the issues of accountability in case of autonomous vehicles on p 34.

emerging policy globally is the practice of third-party independent audits of the algorithmic systems.[109]

Another important consideration before imbibing any sort of accountability in algorithmic systems is to contextualize the existing societal norms of where such systems are deployed. Accountability norms developed in Western legal regimes may not work everywhere. While it is equally pertinent that algorithmic systems are not deployed without understanding the societal construct, accountability or transparency norms also need to be localized.[110]

Some scholars argue that the current legal regime may be incompatible to deal with algorithmic discrimination. This is because of composite and complex nature of algorithmic classification, the reliance on statistical inference in these systems and the very dynamic nature of such classification.[111] Majority of legal systems protect against discrimination through well-defined protected grounds, which may be ineffective when dealing with the bias in algorithmic systems.[112] Even if the classification in algorithmic systems are 'blind' to these protected grounds, there are high chances that the output will still be discriminatory in some way.[113] Thus, the current legal regime needs to consider these incompatibilities in order to effectively counter the discriminatory nature of algorithmic systems.

C. Representation and bias

Another argument being forwarded is the need to increase diversity and gender representation in entities that will develop AI technologies and in entities that will utilize these

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[109] See for example, Ada Lovelace Institute, 'Technical Methods for Regulatory Inspection of Algorithmic Systems' (Ada Lovelace Institute 2021) <https://www.adalovelaceinstitute.org/report/technical-methods-regulatory-inspection/> accessed 11 May 2023. This report explores six different kinds of audits for a complete regulatory inspection: code audit, user survey, scraping audit, API audit, sock-puppet audit and crowd-sourced audit.
Also see for example, AI Now Institute, 'Algorithmic Accountability: Moving Beyond Audits' (AI Now Institute 2023) <https://ainowinstitute.org/publication/algorithmic-accountability> accessed 11 May 2023. This recent work argues against audits, as industry has taken a leadership role in such audit practices which then again concentrates the power in the technology industry rather than taking it away.
Also see for example, Inioluwa Deborah Raji and others, 'Outsider Oversight: Designing a Third Party Audit Ecosystem for AI Governance', (*Proceedings of the 2022 AAAI/ACM Conference on AI, Ethics, and Society* 2022) <https://dl.acm.org/doi/10.1145/3514094.3534181> accessed 11 May 2023. The authors in this paper conclude that not just audits, but sustained focus on institutional design is equally required for algorithmic accountability.
[110] See for example, Sambasivan and others (n 45).
[111] Raphaële Xenidis, 'Tuning EU Equality Law to Algorithmic Discrimination: Three Pathways to Resilience' (2020) 27 Maastricht Journal of European and Comparative Law 736.
[112] See for example, Wachter (n 58).
[113]See for example, Daniel E Ho and Alice Xiang, 'Affirmative Algorithms: The Legal Grounds for Fairness as Awareness' [2020] University of Chicago Law Review Online 134. The authors argue that race or gender neutral approaches to algorithmic decision making may be less effective at actually promoting the state interests related to fairness.

technologies.[114] This implies that women need to be equally represented at all the stages of AI life cycle. From creation of such technologies to its final application stage, an equal representation will ensure that the concerns regarding any form of bias (gender, racial or historical) can be first raised, deliberated and worked upon in the design phase itself, and then in its subsequent application. This argument is a well-tested argument. To reduce gender gap in various domains, the demands have always been to increase women representation in all sectors. Currently only 22% of professionals in the field of artificial intelligence and data sciences are women.[115] Under representation in any sector has dire consequences.[116] Discrimination is being coded right at the doorstep of innovation when we have only 22% representation in something that wants to transform the living world for us.

This argument, while well-tested, has other challenges, more so for India. While increasing representation is necessary, it must be done keeping in mind the various facets of discrimination in India. It must be the policy aim to ensure that more women take up education in these fields, that they are part of the workforce, that the benefits are not restricted to only a certain caste/class.[117] What solution would be the most appropriate, has to be decided by every nation depending on their technological development and their socio-cultural challenges. But to deal with gender bias in AI, countries will have to increase gender representation in their workforces.

IV. SOME GLOBAL LESSONS

Algorithmic systems present similar challenges in all the jurisdictions it has made inroads in. While India has its own set of challenges, there certainly are some positives that it can take from other jurisdictions. This section discusses three specific developments. While the Danish initiative targets data, the Brazilian initiative wants development of AI systems on the foundations of human rights. The EU initiative wants to regulate the implementation of AI systems through a risk to society approach and the New York initiative will periodically audit

[114] Manyika, Silberg and Presten (n 22).
[115] Erin Young, Judy Wajcman and Laila Sprejer, 'Where Are the Women? Mapping the Gender Job Gap in AI' (The Alan Turing Institute 2021).
[116]See for example, Caroline Criado Perez, *Invisible Women: Exposing Data Bias in a World Designed for Men* (Chatto & Windus 2019). In a very important feminist work on data bias, author Criado Perez discusses the data gap present in design (for instance cars), urban planning, medical data, etc and how the bias against women is creating a world less safe for women
[117] Mahendru, Dutta and Mishra (n 47).

the algorithmic systems for biases. These initiatives target regulatory intervention at different phases of AI development, and they can inform the Indian approach in regulating discrimination out of AI systems.

A. Dealing with Data – Danish Initiative

As we have discussed, data is the foundation of algorithmic systems, and it is what powers AI. Algorithms will produce discriminatory outputs if the data that they are trained on are inaccurate,[118] biased,[119] and/or unrepresentative.[120] This implies that the first instance where regulations can be helpful is to ensure that data are of optimal quality. Sub-standard quality of data will not be helpful in creation of a quality system. In this regard, Denmark has taken a positive regulatory step forward. As part of the Danish National Strategy for Artificial Intelligence, the Danish government has adopted what is presumably the first law for data ethics.[121] Under the law, companies will have to provide information about their data ethics policy in annual reporting. The government has published a data ethics toolbox that will work as guidance for companies to integrate data ethics in their practices.[122] The Danish government, along with a consortium of partners, has also created a Joint Cybersecurity and Data Ethics Seal. The seal will be for the purposes of independent labelling, given to companies that meet its requirements for cybersecurity and responsible handling of AI related data.[123] The purpose behind these frameworks is to disseminate information to consumers in order to build trust as well as create market incentives for adoption of ethical practices in data.[124]

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[118] Pauline T Kim, 'Data-Driven Discrimination at Work' (2016) 58 William & Mary Law Review 857.
[119] Solon Barocas and Andrew D Selbst, 'Big Data's Disparate Impact Essay' (2016) 104 California Law Review 671.
[120] Harini Suresh and John V Guttag, 'A Framework for Understanding Sources of Harm throughout the Machine Learning Life Cycle', in *Equity and Access in Algorithms, Mechanisms, and Optimization* (2022) <http://arxiv.org/abs/1901.10002> accessed 13 October 2022.
[121] Frederik Larsen, 'Denmark: An Independent Council and a Labelling Scheme to Promote the Ethical Use of Data' (*OECD.AI Policy Observatory* 2020) <https://oecd.ai/en/wonk/an-independent-council-and-seal-of-approval-among-denmarks-measures-to-promote-the-ethical-use-of-data> accessed 13 October 2022.
[122] This is available (in Danish) at 'Dataetik' (*Virksomhedsguiden*) <https://virksomhedsguiden.dk/content/temaer/dataetik/> accessed 13 October 2022.
[123] 'New Seal for IT-Security and Responsible Data Use Is in Its Way' (*Ministry of Industry, Business and Financial Affairs*, 31 October 2019) <https://eng.em.dk/news/2019/oktober/new-seal-for-it-security-and-responsible-data-use-is-in-its-way/> accessed 13 October 2022.
[124] Larsen (n 121).

B. Principled AI development – The Brazilian AI regulation

The Brazilian Artificial Intelligence Bill[125] has been approved in the Congress and now awaits a vote in the Senate.[126] If approved, it will be one of the first laws directly regulating AI. The Brazilian Bill is a short comprehensive bill (10 articles long) that takes a distinctive route for regulating AI. Rather than providing detailed provisions, it lays down broad foundations, principles and guidelines for development and application of AI in Brazil. For instance, it says that the application of AI in Brazil is aimed at "incentivizing sustainable and inclusive economic development and societal welfare";[127] that development and application of AI will follow the foundations of "*observance of ethics, human rights and democratic values*";[128] or that the principle for development will be for "*beneficial purpose: artificial intelligence systems shall seek beneficial results for humanity*"[129] and to "*mitigate the possibility of using systems for illicit or abusive discriminatory purposes*".[130] This route of laying down principles to guide the development and application of AI can be beneficial for both, allowing innovation as well as safeguarding the principles that are important for a society. While the Bill can be criticized for being too general, it is also an expression of a willingness to harness technological developments by nudging them into taking a path that respects human rights and democratic values. The Bill also lays down guidelines for both ex-ante as well as ex-post implementation of AI in Brazil. Along with the Brazilian data protection law, this Bill can effectively ensure that innovation respects the needs of Brazilian society.

C. Regulating AI – The European Union Initiative

The European Commission has released its draft proposal on EU Artificial Intelligence Act in April 2021.[131] The European commission has been deliberating the various risks posed due to AI systems and this gets reflected in its proposed act as well. The act sets out horizontal rules for the development, commodification, and the use of AI-driven products within the territory of EU; thus, making the rules for AI consistent across the EU.[132] Of major importance is the

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[125] Bill Number 21-A/2020

[126] Walter Gaspar, 'Non-Official Translation of the Brazilian Artificial Intelligence Bill, n. 21/2020' (*CyberBRICS*, 26 October 2021) <https://cyberbrics.info/non-official-translation-of-the-brazilian-artificial-intelligence-bill-n-21-2020/> accessed 9 January 2023.

[127] Bill (n 125), Article 3 (I).

[128] ibid, Article 4 (III).

[129] ibid, Article 5 (I).

[130] ibid, Article 5 (III).

[131] European Commission, Laying down harmonised rules on Artificial Intelligence (Artificial Intelligence Act) and Amending Certain Union Legislative Acts, 2021/0106 <http://www.europarl.europa.eu/RegData/etudes/BRIE/2021/698792/EPRS_BRI(2021)698792_EN.pdf>.

[132] Kop Mauritz, 'EU Artificial Intelligence Act: The European Approach to AI' (2021) 2021(2) Stanford - Vienna Transatlantic Technology Law Forum, Transatlantic Antitrust and IPR Developments,

fact that the act's safety framework is constructed around a four-tiered risk category. The AI systems will be categorized on four different level of risks that they might pose to the society: unacceptable risk, high risk, limited risk, and minimal risk.[133] Such assessment and categorization of AI will further set out proportionate requirements and obligations as per the risk level for developers and market players.[134] Annex III of the Act lists on high-risk systems and includes "*AI systems intended to be used for recruitment or selection of natural persons, notably for advertising vacancies, screening or filtering application, evaluating candidates... making decisions on promotion and termination of work-related contractual relationships.*"[135] The Act lays down a risk management system for such high-risk AI systems.[136] This is envisioned to safeguard against the risks to rights, health or safety of public. The act is an important step forward in the current legal vacuum. Non-discrimination will be one of the factors against which the risk of AI systems will be assessed.[137] Bringing ethical and legal values to the AI ecosystem is necessary to eliminate the risks to society.

D. Auditing the bias – The New York approach

One of the comprehensive laws that exclusively target algorithmic bias in employment is the New York city's Local Law 144 set to be enforced in July 2023. It will regulate what it calls the 'automated employment decision tools.' These include any computational process derived from machine learning, statistical modeling, data analysis, or artificial intelligence. The law prohibits employers from using these automated employment tools unless the employers conduct a yearly audit for bias in the tools. Further, this audit has to be conducted by an independent third party that has no prior connection to either the decision-making tool or the vendor of the tool or the employer (user of the said tool). The law also demands that a candidate needs to be notified whenever such an automated tool is used, and they should also be given an opportunity to request for an alternative selection process.[138] While an extremely important

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[133] Artificial Intelligence Act, Title III, Article 6.

[134] Also see for example, Cailean Osborne, 'The European Commission's Artificial Intelligence Act Highlights the Need for an Effective AI Assurance Ecosystem' (Centre for Data Ethics and Innovation Blog,11 May 2021) <https://cdei.blog.gov.uk/2021/05/11/the-european-commissions-artificial-intelligence-act-highlights-the-need-for-an-effective-ai-assurance-ecosystem/> accessed 13 October 2022.

[135] Artificial Intelligence Act, Annex III.

[136] Artificial Intelligence Act, Title III, Article 8.

[137] European Commission, 'A European Approach to Artificial Intelligence | Shaping Europe's Digital Future' <https://digital-strategy.ec.europa.eu/en/policies/european-approach-artificial-intelligence> accessed 14 October 2022.

[138] Mary Jane Wilson-Bilik, Deepa S Menon and Michael Bahar, 'New York City Delays Enforcement of Its Artificial Intelligence Bias Audit in Employment Law as Rule-Making Continues' (*Eversheds sutherland,* 15 February 2022) <https://us.eversheds-sutherland.com/NewsCommentary/Legal-Alerts/256738/New-York-City-delays-enforcement-of-its-artificial-intelligence-bias-audit-in-employment-law-as-rule-making-continues> accessed 11 May 2023.

piece of legislative development, the law narrowly defines 'employment decisions' to only hiring and promotion. Hence, decisions or applications of automated tools for purposes such as compensation, workforce planning, termination, performance evaluation, screening of candidates is not within the ambit of this particular law.[139]

While I have already pointed out the need to reflect on a GDPR styled data-protection law in India, the abovementioned global developments bring certain positives for regulating AI. If at the onset, AI development is directed to follow certain principles, certain foundations such as data regulation and further regulation of the systems (based on the risk they might pose to the society),hen AI might be more helpful than disruptive to our societies.

V. INDIA, AI AND GENDER DISCRIMINATION

Non-discrimination is one of the fundamental human rights guaranteed by the Indian constitution. Article 15(1) of the Indian constitution declares that "The state shall not discriminate against any citizen on grounds only of religion, race, caste, sex, place of birth or any of them".[140] But the protection of Part III of the Indian constitution is generally available against "State" and the courts have extensively dealt with various cases and has defined the scope of 'State' under article 12.[141]

Indian constitution has three provisions that expressly prohibit private fundamental rights violation. This horizontal application of non-discriminatory fundamental rights is provided under Article 15 (2),[142] Article 17,[143] and Article 23.[144] Through these provisions, along with developing jurisprudence for horizonal application of fundamental rights, the Supreme Court

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[139] Jim Paretti and others, 'New York City Adopts Final Regulations on Use of AI in Hiring and Promotion, Extends Enforcement Date to July 5, 2023' (*Littler Mendelson P.C.*, 13 April 2023) <https://www.littler.com/publication-press/publication/new-york-city-adopts-final-regulations-use-ai-hiring-and-promotion> accessed 11 May 2023.

[140] The Constitution of India, Art 15 (1).

[141] The Constitution of India, Art 12. See for example, *University of Madras vs Shanta Bai,* AIR 1965 Mad 67, *R.D. Shetty v International Airport Authority,* AIR 1979 SC 1628, *Ajay Hasia vs Khalid Mujib,* AIR 1981 SC 487. One of the horizontal applications of fundamental right, the Supreme Court of India has interpreted "other authorities" as non-state actors that are so closely connected to the functions that the State disposes, that they can be read under the meaning of Article 12.

[142] The Constitution of India, Art 15 (2) protects against discrimination from certain private entities providing services to the public in general such as shops, restaurants, hotels, etc.

[143] The Constitution of India, Art 17 abolishes untouchability and makes the practice a crime.

[144] The Constitution of India, Art 23 prohibits human trafficking and forced labour.

has extended the application of constitutional provisions.[145] But it is still limited in its scope.[146] For our purposes, it is not only the State that will utilize AI, but also the private actors. Extension of non-discriminatory constitutional provisions beyond the state can be a positive step to ensure that discriminatory systems do not proliferate in society.

Another important divergence that Indian policy has is in the format of reservation.[147] Indian constitution provides for reservation,[148] which is much more extensive in comparison to the Western ideas of affirmative action. The Indian reservation policy, while being described as a radical policy[149] for redistribution of resources,[150] has been an effective tool to deal with historical and institutional prejudices in Indian society. The constitution also extends this to women. [151]

While there are constitutional guarantees against discrimination, "*India is unique among democracies in that a constitutional right to equality is not backed by comprehensive legislation*".[152] Lacking a comprehensive legislation dealing with discrimination, the central government has enacted the same within other legislations. Gender discrimination has mostly been covered by labour legislations.[153] Other than the labour legislations, constitutional provisions are the only protection available to citizens.

The Code on Wages,[154] that replaces four major labour legislations, provides that "there shall be no discrimination...among employees on the ground of gender in matters relating to wages by the same employer, in respect of the same work or work of a similar nature done by any

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[145] Gautam Bhatia, 'Horizontality under the Indian Constitution: A Schema' (*Indian Constitutional Law and Philosophy*, 24 May 2015) <https://indconlawphil.wordpress.com/2015/05/24/horizontality-under-the-indian-constitution-a-schema/> accessed 11 January 2023.

[146] In a recent judgement, Supreme Court had extended (albeit still limited) enforceability of Article 19 and Article 21 against private individuals and entities, *Kaushal Kishore vs State of Uttar Pradesh*, WP (c) 113 of 2016. Also see, Vedant Jha, 'India Supreme Court Rules Fundamental Rights Enforceable against Private Parties' (JURIST, 4 January 2023) <https://www.jurist.org/news/2023/01/fundamental-rights-are-enforceable-against-private-individuals-and-entities-rules-india-supreme-court/> accessed 11 January 2023.

[147] The Constitution of India, Art 15 (3).

[148] The Constitution of India, Art 15 (3), Art 15 (4). Art 15 (5), Art 15 (6), Art 16 (4). Art 16 (4A), Art 16 (6).

[149] See for example, Robert Baker, 'Bioethics and Human Rights: A Historical Perspective' (2001) 10 Cambridge Quarterly of Healthcare Ethics.

[150] Vani K Borooah, Amaresh Dubey and Sriya Iyer, 'The Effectiveness of Jobs Reservation: Caste, Religion and Economic Status in India' (2007) 38 Development and Change 423.

[151] The Constitution of India, Art 15 (3).

[152] Suhrith Parthasarathy, 'The Need for an Anti-Discrimination Law' *The Hindu* (15 June 2020) <https://www.thehindu.com/opinion/lead/the-need-for-an-anti-discrimination-law/article31828372.ece> accessed 14 October 2022.

[153] See for example. Code on Wages, 2019, The Maternity Benefit Act, 1961, Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013, Minimum Wages Act, 1936.

[154] The Code of Wages, 2019, Act 29 of 2019.

employee"[155] and that "no employer shall make any discrimination on the ground of sex while recruiting any employee for the same work or work of similar nature and in the conditions of employment".[156]

On the bare reading of the Code, there seems to be some watering down on gender discrimination. The Equal Remuneration Act[157] provided "No employer shall while making recruitment for the same work or work of similar nature [or in any condition of service subsequent to recruitment such as promotions, training or transfer],[158] make any discrimination against women".[159] The Code follows its predecessor for non-discrimination at the stage of recruitment but does not extend this protection to the later stages, including promotions. The Code provides a single scheme of minimum wages, payment of bonus and payment of wages, hence providing for gender equality with respect to wages. Interestingly the Code does not provide for anything related to 'Information Technology'.

Beyond the Code, two other legislations deal with substantive equality for women in employment. One is the Maternity Benefit Act[160] and the other is the POSH Act.[161] Both these acts lay down certain protections for women at workplaces, so as to ensure a woman's right to work with dignity[162] and to protect her from prejudice in employment due to maternity or miscarriage.[163] Both these protective legislations aim to create conducive employment-environments for women in India, but once again have no provisions related to information technology.

The Information Technology Act[164] is currently the only legislation dealing with the digital technologies. While the term AI and ML remain undefined, the Act defines 'data'[165] as "data means... being prepared or have been prepared in formalised manner."[166] Big data and algorithms don't just work on structured data, but also use semi or unstructured data. The

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[155] ibid Section 3 (1).
[156] ibid Section 3 (2) (ii).
[157] The Equal Remuneration Act, 1976, Act 25 of 1976.
[158] Inserted by Equal Remuneration Amendment Act, 1987 (Act 49 of 1987).
[159] ibid Section 5.
[160] The Maternity Benefit Act, 1961, Act 53 of 1961.
[161] The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013, Act 14 of 2013.
[162] ibid, "Whereas sexual harassment results in violation of the fundamental rights of a woman to equality...and her right to life and to live with dignity...".
[163] ibid (n 159).
[164] The Information Technology Act, 2000 (Act 21 of 2000).
[165] ibid Section 2 (o).
[166] ibid.

definition of this has not been covered under the IT act. AI technology is not traditional computing technology, but instead moves beyond it and has various sub-fields that process and mine data differently. The IT Act enacted two decades back is not comprehensive enough to deal with upcoming technologies.

The IT Act provides for compensation in case an entity handling personal data has been negligent in implementing reasonable security practices and procedures.[167] But beyond this, the Act does not provide anything further. The Act is absolutely silent on discrimination based on data, or on remedies if some digital technology discriminates between any citizens.

The IT Act fails to effectively deal with newer changes in the field. The Indian government's latest legal framework for the digital ecosystem encompasses "a new telecom law, information technology law, and user privacy law".[168] The new information technology law is being discussed as the DIA and the draft was expected to be introduced in the Parliament in 2023. In a recent discussion Ministry of Electronics and Information Technology, presented the broad scope of the act.[169] From the brief presentation, the law is inclined towards facilitating an open market for growth (prospective amendments to the competition law) while protecting the citizens from misuse of AI, cybercrimes, misinformation and concentration of wealth (hence competition) in big tech companies. With regards to making 'internet accountable', the presentation discusses algorithmic transparency, risk assessments, and the need to uphold constitutional rights. However, it doesn't specifically discuss the discriminatory practices that can creep in through algorithmic systems. While the presentation cites numerous examples of internet-related harm, gender-based discrimination or discrimination was not cited, eliciting questions about their consideration in drafting of the law.[170]

The law will presumably attempt at defining and regulating high-risk AI systems, algorithmic decision-making, machine learning, and so on. But it is currently unclear if gender-based discrimination will be considered as one of the parameters of high-risk regulation. The bill is an opportunity for the Indian government to extensively consider the risks that will creep-in the Indian society due to these newer technologies which are not restricted to cybercrimes, online safety or concentration of market power. NITI Aayog has published its approach papers

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[167] ibid Section 43A.
[168] IFF, 'Many Mysteries of "Digital India Bill"' (*Internet Freedom Foundation*, 20 February 2023) <https://internetfreedom.in/many-mysteries-of-the-digital-india-bill/> accessed 11 May 2023.
[169] Ministry of Electronics and Information Technology (n 29).
[170] ibid.

on Responsible AI, that alludes to following the principles of constitutional morality when it comes to responsible management of AI systems. This means following constitutional guarantees of equality and non-discrimination.[171] As pointed out earlier, while horizontal application of rights has been extended, it is still limited in scope. To be effective for our purposes (of non-discrimination and equality in terms of labour), there will be a need for broadening of the scope of constitutional guarantees. NITI Aayog also recommends a risk-based regulatory mechanism for India; with stringent regulatory requirements for high-risk systems.[172] The EU AI act similarly categorizes employment related AI systems as high-risk. Discrimination is a constitutional harm and the DIA, following constitutional morality, should categorize systems related to labour as high-risk and subject them toa stricter regulatory mechanism.

A privacy law is another dimension of the comprehensive legal framework that the Government is considering. The Digital Personal Data Protection Bill has been introduced and passed by the Parliament for data protection in India.[173] The Act follows the previously withdrawn iterations, the PDP Bill[174] and the draft DPDP Bill, 2022.[175] The DPDP Act, 2023 discusses certain concepts such as automated means, data processing and certain harms related to data processing. The PDP Bill allowed personal data to be processed in certain circumstances without the consent of the data principal and one of the circumstances was "recruitment or termination of employment of a data principal by the data fiduciary".[176] The draft DPDP Bill follows its precedent in providing some control to individuals in the processing of their

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[171] NITI Aayog, 'Responisble AI Approach Document for India Part 1 - Principles for Responsible AI' (NITI Aayog, 2021) <https://www.google.com/url?sa=i&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=0CAIQw7AJahcKEwjAnYbCisj_AhUAAAAAHQAAAAAQAw&url=https%3A%2F%2Fwww.niti.gov.in%2Fsites%2Fdefault%2Ffiles%2F2021-02%2FResponsible-AI-22022021.pdf&psig=AOvVaw2I5FYqnMb9EuCK6T4kIp7E&ust=1687014936593410> accessed 16 June 2023.

[172] NITI Aayog, 'Responsible AI Approach Document for India: Part 2 - Operationalizing Principles for Responsible AI' (NITI Aayog, 2021). <https://www.google.com/url?sa=i&rct=j&q=&esrc=s&source=web&cd=&ved=0CAIQw7AJahcKEwjQ-Kvfhcj_AhUAAAAAHQAAAAAQAw&url=https%3A%2F%2Fwww.niti.gov.in%2Fsites%2Fdefault%2Ffiles%2F2021-08%2FPart2-Responsible-AI-12082021.pdf&psig=AOvVaw3fDOLZr50h0LcAdWDE3r5m&ust=1687013613208904> accessed 16 June 2023.

[173] The Digital Personal Data Protection Act, 2023 (Act 22 of 2023).

[174] 'The Personal Data Protection Bill, 2019' (*PRS Legislative Research*, 2019) <https://prsindia.org/billtrack/the-personal-data-protection-bill-2019> accessed 14 October 2022.

[175] 'Draft Digital Personal Data Protection Bill, 2022' (*PRS Legislative Research*) <https://prsindia.org/billtrack/draft-the-digital-personal-data-protection-bill-2022> accessed 6 January 2023.

[176] Bill (n 174), Clause 13 (1) (a).

personal data[177], but still allows deemed consent for processing personal data for the purposes of employment and recruitment.[178] The Act similarly allows processing for the purposes of employment.[179] When we talk particularly about biases or biased decision-making, the term 'discriminatory treatment' occurred only once in the PDP Bill while defining the term 'harm'.[180] There were provisions to protect the data principal from harms occurring because of processing or profiling of data but the Bill provides few protections against the specific harms from automated profiling and decision-making. The Act while defining "loss" and "gain", restricts it to loss or gain while processing of personal data.[181] The act does not follow its precedents to expressly lay down "harm" through processing of personal data.

The Bills and now the Act do not directly mandate for data fiduciaries to consider biases in datasets but the provisions relating to data quality required data fiduciaries to ensure that personal data that was processed is complete, accurate and not misleading.[182] The data protection bill should aim towards legal, fair and non-discriminatory processing of data but as recognized by NITI Aayog,[183] the PDP Bill, the draft DPDP Bill and the DPDP Act do not provide for optimal quality of data, which will become a challenge for fair and ethical AI. Legislators will have to specifically look into ethical and legal issues pertaining to AI and provide directly for the same througha robust legal regime.

AI technology is developing at a great speed and would require a robust legal system that does not stifle its development but only restrains its prospective harms. The DIA will presumably tackle the issues related to risks presented by these technologies. Taking inspiration from other jurisdictions, the Indian law will have to further incorporate specific provisions that restrict the harmful practices of gender-based discrimination in employment. When we look at the data protection bills, they allow the processing of personal data without consent (or deemed consent) for the purposes of recruitment and termination. Such an exemption again will have to be judged against the potential harm of biased automated decision making.

An important discussion to be had here is regarding audits and an expert body for dealing with such discriminatory harm. As we have discussed, algorithmic discrimination is often harder to

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[177] Draft (n 175), Chapter 2.
[178] ibid Clause 8(7).
[179] Act (n173), Section 7 (i).
[180] Bill (n 174), Clause 2 (20).
[181] Act (n 173), Section 2(o), (p), (u).
[182] Bill (n 174) Clause 8, Draft (n 175) Clause 9(2).
[183] NITI Aayog, 'National Strategy For Artificial Intelligence' (n 60).

recognize, detect and then eliminate due to the complex and black-box nature of these systems. The issue is further complicated because systems learn about bias post deployment. This brings up the need to periodically assess these systems and to have an expert body to assess these complex socio-technical systems. Audits of algorithmic systems is being presented as one effective way of assessing these systems periodically. As discussed, New York city will become one the first jurisdictions to legally enforce provisions for independent audits. The DIA can take inspiration from such measures to imbibe the principles of accountability for users of such systems.

Anti-discrimination laws can only become effective if the implementation of these socio-technical systems is regulated through accountable public bodies. The DPDP Act establishes a Data Protection Board of India.[184] In a similar fashion, an expert body[185] that can assess algorithmic systems, the risk that they present and their impact, can ensure that algorithmic systems do not perpetuate discrimination and thus needs to be established. The knowledge gap present in India further accentuated the need of such measures to be taken. The current employment and technology laws already have provisions for tribunals or complaint committees. The DIA presentation discusses the establishment of an adjudicatory and appellate mechanism under the law. If the law provides for discriminatory risk, such an expert adjudicatory body can strengthen enforcement regime for technological systems.[186]

The upcoming technology law and the data protection law make some inroads towards regulating AI development and proliferation in the Indian society. This has to be combined with updating other employment laws in line with newer practices in recruitment, termination, advertisements, etc., to ensure that such practices are not discriminatory in nature. As discussed, at present these laws do not discuss information technologies, but there is a greater need to reflect the changes in society within the legislature as well. Interestingly, the draft DPDP Bill lays, "the pronouns "her" and "she" have been used for an individual, irrespective

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[184] Act (n 173), Section 18.

[185] Indian legal regime does have such statutory bodies. For instance, Central Drugs Standard Control Organisation is responsible for drug approvals in India. NITI Aayog in its approach paper for operationalizing principles for Responsible AI discusses the same, the need to set up an "independent, multi-disciplinary body at the apex-level… will aide sectoral regulators in formulating appropriate AO policies, and serve as a think-tank for creating quality research products around issues related to AI". See in NITI Aayog, 'Responsible AI Approach Document for India: Part 2 - Operationalizing Principles for Responsible AI' (n 170).

[186] Such an expert body cannot however function in a fashion similar to the current Cyber Appellate under the IT Act. The Cyber Appellate has heavily been criticised as an ineffective body. See for example, Anuj Srivas, 'The Tragic and Comedic Functioning of India's Cyber Appellate Tribunal' (*The Wire*, 12 December 2016) <https://thewire.in/banking/tragic-comedic-functioning-indias-cyber-appellate-tribunal> accessed 12 May 2023.

of gender",[187] following the DPDP Act also uses "her". But a law that purports to deal with harm of data processing with this positive step still does not contemplate how it can assist in eliminating gender bias.

Gender discrimination is both a historical and institutional issue in India. While there is an acute need to have laws in place with measures such as establishment of expert body,when it comes to gender discrimination, legislations can only do so much. There is an urgent need to introspect and bring in measures that push for a greater participation of women in workforce. The constitutional aims can only be fulfilled when society makes it conducive for women to grow in workplaces. Along with the government, civil society needs to take actions to not only push for growth, but also inform on how discriminatory practices might be making employment even harder for women.

VI. LESSONS FOR INDIA AND WHAT IT NEEDS TO DO DIFFERENTLY

AI has the potential to solve many societal problems including human biases in decision making. However, "technology is neither good nor bad; nor is it neutral"[188] As we have discussed, AI is only as good as the data we provide and regulatory framework we create. Data quality will determine whether an algorithmic decision is good, fair and unbiased. With India this will be a more complex situation. Access and the ability to create data is fundamentally skewed in favour of upper-class/upper-caste men, and there will be underrepresentation of other groups.[189]

While developing and deploying an algorithmic-system, institutions as well as developers must consider the ground realities in India. In this context, something akin to the Danish data ethics seal could prove beneficial in India as well. We have discussed the gender discrimination dimension in employment in India which will be reflected in the algorithmic system. Enforcing quality of data can be the first regulatory step for ensuring that AI systems are not discriminatory. Consequently, there is a need to first understand misrepresentation, underrepresentation and out-right unavailability of elaborate data of certain groups.

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[187] Draft (n 175) Clause 3(3).
[188] Melvin Kranzberg, 'Technology and History: "Kranzberg's Laws"' (1986) 27 Technology and Culture 18.
[189] Sambasivan and others (n 45).

The Indian policy of reservation will need to be accounted for when developing algorithmic systems. This would be a new context-specific evaluation parameter. In this context, incorporating some foundational principles (akin the Brazilian Bill) can guide AI development and application in India. If there can be general ex-ante principles that guide AI development and application, there are higher chances of reducing/eliminating the usage of discriminatory AI systems. These principles will also have to guide the public domain application of AI, effectively forcing public institutional actors to conform to such principles.

A more fundamental question that needs to be considered is the *need* for an algorithmic system. Will society truly benefit with the introduction of algorithmic systems? These systems will undoubtedly replace time tested systems that currently have mechanisms in place to deal with various issues that can and do arise. Until we establish a robust system of assessment for algorithmic systems, it is worth questioning the need to even introduce these highly complex systems. The approach of risk-based assessment of the EU AI Act can be useful here. High-risk AI systems can either not be deployed or be deployed with stricter regulatory requirements.

Few jurisdictions have taken a rights-based approach, which requires an aware citizenry that can approach appropriate forums for rights redressal. India still lacks an aware citizenry that can understand such systems and raise questions.[190] A vast population currently does not even have access to digital technologies. In such a scenario, a risk-based approach can be more useful with the requirement for the law to ensure that everyone, regardless of their position, is protected against the misuse of digital technologies.

While the risk approach to AI system is being criticized for trying to pit fundamental human rights against the operational risks of an AI system,[191] it can be beneficial if based upon a rights framework instead of a framework of rights vs innovation. As discussed, there is a large knowledge gap present in India. This requires categorization of AI systems that can be harmful and limiting their application (as also discussed by NITI Aayog). The risk must be assessed contextually, "when assessing the potential for harm, the sociotechnical system as a whole must be considered. All components of an algorithmic application... from the design phase through

[190] ibid.
[191] Fanny Hidvegi Massé Daniel Leufer, Estelle, 'The EU Should Regulate AI on the Basis of Rights, Not Risks' (*Access Now*, 17 February 2021) <https://www.accessnow.org/eu-regulation-ai-risk-based-approach/> accessed 9 January 2023.

to its implementation... and any evaluation and adjustment measures should be assessed."[192]. It can be based on constitutional morality. A system that has the risk of perpetuating gender discrimination needs to be regulated, or even disallowed from being implemented. Discrimination should be considered as high risk and hence systems regulated more stringently. Without proper technology law regime, India is already witnessing blatant misuse for technology. For instance, Delhi Police's use of FRT has been reported to have low accuracy, and its use has expanded from finding missing children to arresting protestors (thus pointing to significant scope creep).[193] There is a need to understand the risk that such systems could pose for Indian society, and need for broader public debates before such systems are enforced.

As discussed previously, a holistic approach that goes beyond legislation is required. The instances above illustrate that public institutional actors are equally involved in application of discriminatory AI systems, and so forcing them to regulate the practice through laws might not be the most effective route. Consequently, India needs to open space for critical work in this area that looks beyond the euphoria of technology. It needs to empower civic actors, expert bodies, and researchers to not only investigate systems but also critically question the proliferation of technology and hold institutional actors accountable. Global dialogues and lessons can be beneficial to direct the critical discourse for technology. India needs to develop technology and enforce laws reflecting its needs and complexities. While there is an urgency to bring such a law, there is equally a need to have broader discussion around it. Gender-discrimination is just one facet of such discussion and needs to be considered while we draft another law which will be effective to tackle algorithmic discrimination.

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[192] NITI Aayog, 'Responisble AI Approach Document for India Part 1 - Principles for Responsible AI' (n 169) at 13.

[193] Manish Singh, 'India Used Facial Recognition Tech to Identify 1,100 Individuals at a Recent Riot | TechCrunch' (*Tech Crunch*, 11 March 2020) <https://techcrunch.com/2020/03/11/india-used-facial-recognition-tech-to-identify-1100-individuals-at-a-recent-riot/> accessed 13 October 2022.