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Smarter places or deeper exclusion? AI, urban planning and disability discrimination law: a case study using Smart Places in New South Wales

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Abstract

Artificial Intelligence (AI) is often touted as the future of urban planning, promising better urban environments for citizens. In New South Wales (NSW), the State Government's "Smart Places" initiative reflects this optimism in the use of AI in urban planning. Behind the rhetoric though there is a current regulatory gap on how AI can be used in a way that will not unlawfully discriminate against people with disability (PWD).

Our research builds on existing critical literature in urban planning that focuses on the regulatory and socio-ethical concerns of AI in urban governance and smart city making. Drawing from both urban planning and legal perspectives, we adopt a cross-disciplinary approach to the issues clearly identified in this scholarship on the use of AI and corresponding risks of its use to PWD. We use the NSW Government's approach to Smart Places as a case study to exemplify how currently applicable discrimination laws could be adapted to address some of the concerns set out in the scholarship surrounding inclusivity, transparency and accountability on the use of AI in urban planning. The discussion in this paper is thus specifically intended to build on previous scholarship in its calls to adopt specific measures to mitigate the risks posed by AI to PWD in urban planning, including through legal regulation of the technology.

Keywords:
Inclusion, disability discrimination, urban planning, artificial intelligence, law, data bias, algorithmic bias, transparency, accountability

Introduction: risks to PWD from the use of AI in urban planning

The use of AI is becoming ubiquitous in modern society. Governments, industry and individuals alike are increasingly dependent on AI. Planning literature tells us that AI is now part of daily decision making, task allocation and service provision in urban planning. This was predicted some years ago by Batty (2018), with AI now spreading throughout the world of urban planning at exponential speed (Lartey & Law 2025; Wolniak & Stecuła 2024; Yigitcanlar et al. 2020).

Increasingly, governments are also using a range of non-legal frameworks, including guidelines and policies, to influence the use of AI and smart city strategies (John et al. 2025; Makkonen & Inkinen 2024; Yigitcanlar et al. 2020). However, apart from having no legal force, these approaches have not been particularly focused on the risks that AI represents to PWD. These include the potential negative effects created by AI for PWD, such as discriminatory impacts created by AI's data bias, its algorithmic bias and its potential to entrench existing planning failures to include PWD in planning decisions. Added to lack of regulation surrounding these risks are the identified failures of existing AI to achieve transparency and corresponding accountability (Sanchez et al. 2025). Overall, current scholarship tells us that the risks and implications posed by AI to PWD are not only greater but also less frequently considered by planners, compared to more mainstream goals being presently highlighted by the use of AI such as so called "techno efficiencies" of AI (Makkonen & Inkinen 2024; Wang et al. 2021; Zhou et al. 2024).

In this article, we examine how existing disability discrimination laws applicable in NSW could be adapted to address some of the concerns identified in scholarship to attempt to mitigate risks of exclusion of PWD and risks presented by AI to transparency and accountability. We use the case study of the use of AI in planning Smart Places in NSW to exemplify how this could be achieved through legislative amendment. Specifically, we recommend that this could be done by the adoption of clear legal standards on the use of AI in planning Smart Places ("Smart Places" are defined in Section 4.4 below).

Section 2 outlines scholarship on planning's historical failure to address the rights of PWD and recent scholarship on the increasing use of AI in planning as well as the corresponding increases in risk to PWD. In Section 3, we outline our methodology and its limitations. In Section 4, we describe what our research adds to the existing scholarship on risks to PWD from AI in planning. In Section 4, we describe how existing disability discrimination laws can be applied and adapted as one form of legal regulation to address concerns identified in the planning literature. We also set out how that can be achieved.

Our research is not alone in its call for greater accountability measures being put in place regarding the use of AI in urban planning (Sanchez et al. 2025; Yigitcanlar et al. 2020). We seek to build on existing calls to mitigate identified risks to PWD and to add an important, legal dimension to the need to address the specific risks of AI to PWD. We suggest one way the NSW Government could make that happen through the adoption of legally enforceable AI standards. Sections 5 and 6 we further set out our recommendations and calls for further research.

Literature Review

This literature review is structured to situate our research in both planning and legal scholarship, tracing the increasing adoption of AI in urban planning. It provides the background necessary to outline how current disability discrimination laws could be applied and adapted to meet some of the risks identified in the planning scholarship of the use of AI to PWD.

First, we outline planning's traditional failures to include PWD. Next, we outline the main applications of AI in planning so far, clarifying key definitions and categories of AI technologies used. We also set out what current scholarship has clearly detailed as the risks presented by AI to PWD in urban planning.

It is important to note at the outset that we do not contend that PWD are the only population discriminated against in urban planning. We acknowledge that many PWD identify at the intersectionality of race, gender, low socio-economic status, sexuality, youth and age, First Nations Peoples and other factors that have also proven to be negatively affected by bias in AI (Min 2023; Sanchez et al. 2025; Whittaker et al. 2019). This article however focuses on PWD within, and correspondingly defined by, a specific legal context (see Section 3 on methodology and the definition of "disability" applying legal method; see also Section 4 and Appendix B for the current legal definitions of "disability"). We acknowledge that, across social science literature, disability is experienced and applied differently in different contexts, and how individuals choose to identify also differs (Stafford et al. 2024). For the purposes of our research, people first language is used throughout this article (Convention on the Rights of Persons with Disabilities, 2006).

AI, urban planning and PWD: a story of exclusion

Existing bias and exclusionary practices are traditionally embedded across our social fabric and landscapes (Smuha 2021; Wang et al. 2021). There is a long history in planning scholarship documenting the exclusion of PWD in the urban environment (Gleeson 2001; Jackson 2018; Kitchin 1998; Kitchin 2002; Ross et al. 2024; Stafford et al. 2022). Despite advocacy and regulatory efforts, PWD continue to face systemic exclusion across all stages of planning, including from large infrastructure projects down to micro-environments, such as inclusion in housing and the use of public spaces (Stafford et al. 2022).

The lack of practical guidance and education for planners to include PWD contributes to this problem (Stafford et al. 2024; Terashima & Clark 2021). Existing policies often provide non-specific goals (Larkin et al. 2015; Watchorn et al. 2021). Participatory methods, such as co-design and lived experience integration, are underutilised or improperly implemented due to insufficient training, resources and support (Jackson 2018). Further, resistance by organisations to meaningfully engage with PWD exacerbate the exclusion of PWD from digital and physical environments, risking increased marginalisation of PWD as the use of AI grows (Galvin 2003; Imrie & Thomas 2008; van Toorn 2024).

For PWD, the biases resulting from the use of AI, including unlawful discrimination on the basis of disability, can be significant (Shuford 2023; Whittaker et al. 2019). There is evidence that one-third of PWD encounter barriers to accessibility in Australia (Australian Institute of Health and Welfare 2024, pp. 6-7), underscoring Australia's own failure to meet inclusive planning ideals. Since all of us are aging and, according to the statistics, are likely to experience disability as we age, it is odd that Australia is not taking the risks of these well-known biases of both planning and AI more seriously right now, if only for purely selfish reasons to assist our aging and increasingly disabled future selves.

AI in urban planning now: rapid uptake and increasing risks to PWD

AI is being deployed in a number of ways in an urban planning context, including applications in urban planning support functions such as traffic management and public transport, housing demand forecasts, environmental monitoring (including air and water quality), natural disaster mitigation, energy consumption, urban policy formation, land use and other indicators of liveability and sustainability (John et al. 2025; Son et al. 2023; Wolniak & Stecuła 2024; Xu et al. 2024; Yigitcanlar et al. 2020). AI is increasingly becoming centralised as a decision-making tool used to shape and implement urban environments and infrastructures (Lartey & Law 2025; Makkonen & Inkinen 2024; Son et al. 2023).

Much of the research on AI and PWD focuses on its potential benefits, particularly from adaptive technologies (Makkonen & Inkinen 2024; Zhou et al. 2024). This is in accordance with much of the broader planning literature that focuses on the benefits of AI (Makkonen & Inkinen 2024; Yigitcanlar et al. 2020). Data driven AI is being increasingly relied upon to meet the challenges of scale, efficiency and complexity posed by and within urban planning systems and outcomes (Moreno-Ibarra et al. 2024; Sanchez et al. 2025; Son et al. 2023; Yigitcanlar et al. 2020). The research in this category follows a techno-solutionist approach, presenting AI as a transformative tool for delivering smarter cities. Scholars in this group argue that legal regulation of AI in planning is premature, favouring a "wait and see" approach (Thierer et al. 2017).

More recently however, critical literature has acknowledged that this strong focus on the technical applications and outcomes of AI has not applied a corresponding focus on the risks AI presents, with regulatory and socio-ethical concerns placed as secondary considerations in most uses of AI in urban planning. This critical literature acknowledges that, while AI creates efficiencies, benefits are accompanied by attendant risks.

These risks include a lack of regulation, data and algorithmic bias and a lack of transparency and accountability (Jiricka-Pürrer & Stöglehner 2025; Sanchez et al. 2025; Wolniak & Stecuła 2024; Ye et al. 2025). The research to date reveals how algorithmic bias can reproduce or exacerbate spatial inequalities for PWD where training data and objective functions ignore distributive impacts (Sanchez et al. 2025; Ye et al. 2025). Both machine learning AI and expert AI systems contain bias that work against the interests of PWD. This bias most often stems from flawed or biased data inputs, human errors in programming or training the AI and algorithmic choices that perpetuate existing societal prejudices (White & Lidskog 2022; Zalnieriute et al. 2019). This bias is encapsulated by the idea of "garbage in, garbage out". Existing biased or incomplete data sets in turn lead to flawed AI outputs, including the

perpetuation of existing biases (Gichoya et al. 2023; White & Lidskog 2022). The problems of poor data capture and PWD are just one of many reasons why human oversight and a robust risk mitigation framework are required as part of transparency and accountability to ensure equitable inclusion of PWD (Sanchez et al. 2025).

Given these problems with the use of AI, critical literature has recently argued that the focus on techno -solutionism as the means of solving urban planning problems often obscures political and structural roots embedded in the planning system itself, then incorporated, usually unwittingly, into the AI as well. These forces can include the operation of market forces and underlying inequality in the use of cities too, including use of cities by PWD (Son et al. 2023; Wang et al. 2021). It is argued that the lack of transparency of many AI systems challenge routine administrative transparency and public contestability, both of which are core planning values (Sanchez et al. 2025; Ye et al. 2025). Scholars argue that there is a clear need to integrate governance, including legal frameworks, alongside the use of AI (Lartey & Law 2025; Sanchez et al. 2025; Wang et al. 2021). Planners are thus urged to focus on adopting a human–AI symbiosis, integrating the use of AI while preserving the need for human judgment, oversight, democratic scrutiny and key requirements of procedural fairness embedded in planning systems (Sanchez et al. 2025; Ye et al. 2025). Legal frameworks play an essential in ensuring that AI's use in planning is ethical, transparent, and inclusive (Wolniak & Stecuła 2024).

In summary, critical scholars have made clear that, unless stronger mitigative interventions are put in place to counteract identified risks of AI, undesirable impacts will compound exponentially as the use of AI in urban planning increases. This is particularly concerning for PWD, since planning has traditionally failed to address the rights of PWD. Although AI has the capacity to improve the lives of PWD, this is still an under-studied topic (Makkonen & Inkinen 2024). There is thus a need for, amongst other things, robust legal systems to ensure transparency and accountability in the use of AI and to prevent and mitigate data-driven and algorithmic biases (Sanchez et al. 2025), The risks need to be addressed if society is to avoid perpetuating inequality for and exclusion of PWD, undermining core planning values. Our discussion in this paper attempts to contribute to this important discourse.

Before we proceed to the remainder of our analysis, it is necessary to say something about what planners mean by "AI". To date, planning scholarship has not yet clearly defined what constitutes "AI" (Wolniak & Stecuła 2024). The explanation provided for this is that AI is evolving so quickly. The lack of clarity means that "AI" is used as a broad, umbrella term for all AI, including digital twins, machine learning systems and so called "Generative AI" (Son et al. 2023; Yigitcanlar et al. 2020). What is clear is that there are two main types of AI used in urban planning: expert systems and machine learning systems (which includes data analytics) (Ye et al. 2025).

Machine learning systems derive rules from large datasets to classify or predict outcomes (Bennett-Moses 2017; Lartey & Law 2025). Such AI, since it is based on different reasoning processes to those adopted by humans, frequently identify correlations in data without understanding causation (Bennet-Moses 2017). "Learning" in these systems necessarily

introduces inductive bias whenever the computer learner (the AI) is asked to classify unseen examples (Mitchell 1997). Further, the choice of algorithm made by the AI's human instructors affects the kind of bias the system will display. When used for predictive modelling (which has been a significant use of these systems in planning smart cities to date: see Pettit et al. 2018) machine learning AI assumes that past data can be used to predict the future; a flawed assumption.

The risks presented by machine learning AI are significantly heightened where datasets are small, (as they often are for PWD (Newman-Griffis et al. 2022; Stafford et al. 2022; Trewin et al. 2019;). In this case machine learning tools are likely to "overfit the data, meaning that they will learn things that may be particular to a small sample of cases, thus misclassifying future cases or making unreliable predictions" (Bennett-Moses 2017). In particular, limited data sets lead to unreliable predictions based on existing data that cannot be extrapolated across diverse populations (Bennett-Moses 2017). This data-driven focus has become a large part of planning smart cities, since the primary focus of the use of AI has been on leveraging "big data" to "inform" planning decisions (Smart places strategy 2024; Pettit et al. 2018).

Expert systems on the other hand simulate planning advice by mimicking human responses (Bennett-Moses 2017; Lartey & Law 2025). Since expert systems are designed to emulate reasoning processes of human experts, such systems rely on pre-programmed expertise to provide advice or feedback, often accompanied by logical statements and citations to relevant authorities (Bennett-Moses 2017). Their primary function is to generate expert-like opinions. Expert systems cover what planners refer to as "Generative AI" and "Deep Learning" models (Son 2023).

For the purposes of our analysis in this paper, (using legal, doctrinal method – see Section 3 on methodology), the distinction between the two categories of AI is not important. We are focused on what associated risks, brought about by the use of either form of AI system (expert or machine learning), can be regulated through disability discrimination laws. This can include either form of AI, since each type has already demonstrated its potential to discriminate unlawfully against PWD (Wang et al. 2021).

Methodology and limitations

As noted, we have approached our analysis of the issues and the case study in this paper using a cross-disciplinary approach, drawing on the disciplines of urban planning and law.
Our analysis in the remainder of this paper seeks to add a dimension to the existing literature set out above. We build on the risks identified in that literature and now consider when and how the existing legal framework aimed at preventing unlawful, disability discrimination could be adapted. We analyse how government could do this to begin to address identified risks to equality, transparency and accountability. Our research is accordingly situated at this cross-disciplinary juncture. Since we will be analysing the legal framework, we apply the methodology appropriate to law for that examination: doctrinal analysis. Doctrinal analysis is not only the applicable methodology to interpretation of legislation and case law, but it is an appropriate research method in social sciences such as urban planning when a

legal framework is being interpreted (Bhaghamma 2023; Tiller & Cross 2006). Further, there have been recent calls to use inter-disciplinary approaches to the analysis of AI in urban planning (Sanchez 2023).

Since our analysis relies on an examination of legal doctrine to interpret applicable discrimination laws, doctrinal methodology provides a systematic and authoritative approach for examining the overarching legal framework which underpins the deployment of AI in urban planning for Smart Places in NSW. This analysis thus provides an important contribution to existing planning scholarship by analysing applicable legal requirements aimed at preventing discriminatory conduct against PWD and, thereby seeks to build on the broader socio-economic and political analysis already provided by authors in planning (already set out above).

Unlike descriptive policy or document analysis (which may focus primarily on the articulation of policy goals or discursive framings) doctrinal research directly addresses the binding authority of law and its capacity to structure planning outcomes. While it is often critiqued for privileging textual sources and underemphasising political, social or institutional dynamics, its strength lies in its ability to situate urban planning policy within a clear normative and enforceable legal framework. The results of such analysis can then feed back into the broader social and political analysis conducted by planning scholars (Bhaghamma 2023; Hutchinson & Duncan 2012). Ultimately, that further analysis can lead back to desirable legislative amendment (as we propose in Sections 5 and 6). For this reason, doctrinal analysis constitutes a valuable methodological choice when seeking to evaluate how urban planning systems translate policy ambitions into legally sustainable, governance mechanisms.

The essential features of doctrinal analysis involve "a critical conceptual analysis of relevant legislation and case law to reveal a statement of the law relevant to the matter under investigation" (Hutchinson & Duncan 2012). Such analysis interrogates how legal sources are interpreted and applied by courts to regulate the behaviour of planners. Doctrinal analysis involves use of the principles of statutory interpretation applied by courts, as well as the analysis of legal doctrine developed by courts. The resulting legal decisions create precedents which regulate the behaviour of government and its instrumentalities (including ministers, planning departments, planning panels and consent authorities). This feeds into whether existing laws are enforceable or whether amendment to current laws should occur. As we discuss in Section 5 below, the enforceability of laws is a key part of our argument as to why the NSW Government should adopt clear standards on the use of AI in urban planning. It is the greater clarity that standards provide for legal enforcement of a government's goals that can provide the normative force a law requires to be considered to be "law" at all. As Professor Martin Krygier, one of the common law world's leading public law academics has noted, the enforceability of a standard of behaviour is a fundamental component of law's normative requirement (Krygier 2011). This enforceability applies to government decisions involving the use of AI (Zalnieriute et al. 2019).

In this paper, we do not cover every possible legal cause of action that could be used to challenge a planning decision made using an AI that could discriminate against PWD. The constraints of space make such an undertaking impossible. Further, our focus is on the impact

of current disability discrimination laws, since it is the purpose of such laws to prevent discrimination on the basis of disability. Other potential laws (such as the tort of negligence, traditional administrative review of planning decisions and specific rights of administrative review under planning legislation in NSW) do not have the goal of preventing disability discrimination. Whilst we acknowledge they may provide alternative means for PWD to challenge planning decisions, such causes of action fall outside the scope of our current research. They do each warrant separate consideration. We also do not examine whether AI should be governed by AI-specific legislation at either the Commonwealth or State levels. This is also a very broad and detailed subject which warrants its own, separate analysis in further future research.

Disability discrimination laws, Smart Places and AI

As already explained, in this article we focus on how discrimination laws in existence could apply to decisions by planning authorities in NSW using AI to plan Smart Places. Our interest is in how these laws can be used to regulate the use of AI and its potential for unlawful disability bias. More specifically, we are interested in how the existing legal framework can be used to create transparency and accountability in the use of AI in planning and to address the risks of exclusion set out in planning scholarship (set out in the Literature Review above). We suggest that the NSW Government could adopt AI specific standards that are already available as part of ensuring compliance with disability discrimination laws. We explain how this can be achieved below in Section 5 below.
To begin with, it is necessary to explain the current legal framework on disability discrimination applicable to the NSW Crown and its administrators, including current disability discrimination laws and how standards are adopted as part of those laws. We also explain the NSW Government's current approach to the use of AI in its approach to planning Smart Places. This section therefore provides context to the analysis and recommendations we make in Sections 5 and 6.

Current disability discrimination laws applicable to Smart Places

There are both Commonwealth and NSW laws that can apply to the use of AI in planning Smart Places. The analysis in this Section focuses on how discrimination laws can potentially apply to the State Government of NSW and the instrumentalities through which it carries out the executive functions of the Government (including Ministers of the Crown, planning departments, planning panels and consent authorities such as local councils).
The principal legislation that applies to the NSW Crown and its instrumentalities is the Anti-Discrimination Act 1977 (NSW) (ADA) (Section 5, ADA). The ADA makes it unlawful to discriminate against a person on the basis of a disability (Section 49B, ADA). This includes a prohibition on the ground of disability by any part of the Crown or its instrumentalities if they provide "for payment or not, goods or services, by either refusing to provide the person with those goods or services or based on the terms on which he or she provides the person with those goods or services" (Section 49M, ADA).

The definition of services for the purpose of Section 49M of the ADA is broad, and includes "services relating to entertainment, recreation or refreshment; …services relating to transport

or travel, …services provided by a council or public authority and services consisting of access to, and the use of any facilities in, any place or vehicle that the public or a section of the public is entitled or allowed to enter or use, for payment or not." (Section 4, ADA). The ADA can clearly apply to decisions and outcomes by the NSW Government and its instrumentalities where such decisions affect the provision of goods and services to members of the community. This can include decisions and outcomes reached through the assistance of AI.

The equivalent Commonwealth legislation to the ADA is the Disability Discrimination Act 1992 (Cth) (DDA). The DDA can apply to the NSW Government and its instrumentalities by virtue to the Commonwealth's external affairs power under the Commonwealth of Australia Constitution Act 1901 (Cth). Relevant provisions of the DDA prohibiting discrimination on the grounds of disability can thus apply to NSW bodies where the Commonwealth is using its constitutional power to give effect to international conventions on human rights (ratified by Australia). This includes Australia's obligations under the Convention on the Rights of Persons with Disabilities (2006) and the International Covenant on Civil and Political Rights (1966).

The term "disability" in both the ADA and the DDA adopt a legal definition of disability. This definition has been criticised as using the medical model of disability, rather than a broader social model of disability (Kayess & Sands 2020). The NSW Law Reform Commission is presently in the process of calling for submissions as part of its review of the ADA, including a call for submissions on the present definition of "disability" under the ADA, to take into account that the current definition of disability in the ADA follows the narrow, medically-based concept of disability, and asking if it should be amended to a definition that will incorporate a broader, social model of disability (NSW Law Reform Commission 2025). At present, however, it is the definition of disability under the current versions of the ADA (and the DDA) that we must use for the purpose of the doctrinal analysis in this paper.

Existing disability standards under the DDA

The DDA provides for the adoption of disability standards. For example, the DDA makes clear that it is unlawful to contravene disability standards made pursuant to the Act (Section 23, DDA). Relevant disability standards adopted at present include the Disability (Access to Premises – Buildings) Standards 2010 (the "Premises Standards"). The Premises Standards form part of the National Construction Code (and apply to new buildings built after 1 May 2011). The Premises Standards contain the Access Code for Buildings (Access Code for Buildings (Australian Government 2010) (the "Access Code"). The Premises Standards were reviewed in 2021, leading to amendments that made on 23 November 2024. These amendments included changing the Access Code so that it now references the 2021 edition of AS 1428.1 Design for access and mobility. As of 29 July 2025, the updated Premises Standards have taken effect and are in force.

The Commonwealth has also adopted the Disability Standards for Accessible Public Transport 2002 (which also require the adoption of certain sections of Australian Standard 1428.1). Standards like these are also subject to regular reviews.

Whilst standards can deal with PWD, including access to transport and premises, the focus of these standards is not on how AI can be used to make planning decisions. They say nothing of what records must be kept, or what checks and balances must be adopted, in using an AI in reaching a planning decision either. That is not surprising since it is not the goal of the existing standards to focus on these matters per se. What the standards do however is to provide an example of the fact that the DDA provides the Commonwealth with a power for the adoption of disability standards, including standards to achieve the objectives of the DDA to prevent unlawful discrimination on the grounds of disability. There is no reason standards on the use of AI to prevent unlawful discrimination on the grounds of disability, as part of the power of the Commonwealth to implement Australia's international legal obligations in respect of the rights of PWD, cannot also be adopted by the Commonwealth Government now. Those standards would then apply to regulate NSW instrumentalities to the extent they regulate what does (or does not) constitute unlawful discrimination on the basis of disability.

Disability rules and regulations affecting PWD in planning Smart Places

Apart from standards that have the potential to apply to planning decisions of NSW instrumentalities pursuant to the DDA (Sections 12 and 13 of the DDA), the NSW Government can also independently adopt standards itself.
The NSW Government can mandate standards for planning decisions that can affect PWD. This includes through the adoption of relevant planning policies adopted under some key pieces of planning legislation, including under the Environmental Planning and Assessment Act 1979 (NSW) and the Local Government Act 1993 (NSW). At present, relevant policies include the adoption of the National Construction Code through the NSW Government's planning consent powers. The focus of relevant planning policies to date has been on access to premises (see, for example State Environmental Planning Policy (Housing) 2021 (NSW) and State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 (NSW)).

In addition to those SEPPs, the NSW Parliament also passed the Disability Inclusion Act 2014 (NSW) (the "DIA"). The DIA requires public authorities in NSW to prepare and implement Disability Inclusion Action Plans ("DIAP") for access in the delivery of functions and services provided by them to PWD. This is meant to create an additional obligation on NSW agencies to proactively pursue accessibility outcomes when exercising planning functions. The DIA does not however grant specific statutory rights to individuals that have been discriminated against to enforce DIAPs. In theory, if a DIAP is interpreted by a court as a standard, it could be used in enforcement proceedings if the NSW legislature creates a specific right to do so (we discuss this below in Sections 5 and 6).

Once again, it is important to note that any potentially relevant SEPP or DIAP are not focused specifically on addressing the risk of disability bias in the use of AI in urban planning. They do not specifically address the risks presented by AI, including the need for transparency and accountability identified in the critical literature set out in Section 2 above. It is not their goal

to do so, and, unsurprisingly, they generally lack a corresponding focus on addressing those risks.

Current NSW Government Framework for use of AI in planning Smart Places

So much for disability specific laws addressing the rights of PWD that might be relevant to planning decisions. The remaining question is whether there are any laws in place that specifically address the concerns of planning scholars on the risks of disability bias in planning created by AI, and corresponding threats to transparency and accountability in decision-making by planners. The short answer is no: there is no AI specific legislation at either the Commonwealth or NSW State level that currently regulates the use of AI in planning.

At the Commonwealth level, there are discussions surrounding the potential development of laws to regulate the use of AI, including by Commonwealth instrumentalities. For example, the Commonwealth has distributed a Proposals Paper to explore the possibility of implementation of regulatory approaches for so called "high-risk" AI (following the trend of recent international approaches by the European Union and Canada: see the excellent summary of those differing regulatory approaches in the Commonwealth's Proposals paper for introducing mandatory guardrails for AI in high-risk settings (Department of Industry, Science and Resources 2024).

The NSW Government has taken a non-legislative approach to the use of AI in planning, preferring to adopt a risk-based approach to the use of AI in government decision making. The approach in NSW consists of a combination of the AI Strategy (the "Strategy") (Artificial Intelligence Strategy n.d), the NSW AI Principles (Mandatory Ethical Principles for the use of AI n.d.) (the "Principles") and the NSW Framework (NSW Artificial Intelligence Assessment Framework n.d.) (the "Framework"). We will return to the operation of these policy documents in a moment. For now, it suffices to say that each of these policies can apply to the NSW Government's Smart Places Strategy (Smart places strategy 2024).

It is necessary to say something here about what the Government means by a "smart place". The term "smart place" appears to have been used by the Government to emphasise that it applies to the environment more generally, since smart places can exist in both urban and in regional areas, ranging from neighbourhoods to local government areas or entire regions (Smart places strategy 2024; NSW Smart Public Spaces Guide 2023).

The Government defines a smart place as a location that leverages data insights to enable better decision-making and enhance service delivery (Smart places strategy 2024; Smart Public Spaces Guide 2023). According to the Smart places strategy, smart places achieve this by: (1) integrating sensors and technologies into infrastructure and public spaces to generate and collect data; (2) transmitting, storing, managing, and safeguarding data effectively; (3) analysing and sharing data to create actionable insights; (4) communicating information and insights to assist individuals and organisations in decision-making (Smart places strategy 2024). This definition is clearly broad enough to cover the use of AI that falls within both machine learning and expert systems.

Although planning scholarship at present provides no precise definition of what constitutes a smart place or a smart city (Gracias et al. 2023; Yigitcanlar et al. 2020), the Government's interpretation certainly fits within the multiple working definitions of the term smart place or smart city currently in existence in the literature (John et al. 2025; Makkonen & Inkinen 2024; Pettit et al. 2018). At the least, the term "smart", applied to a place or a city in current scholarship, includes six key elements: governance, economy, mobility, environment, living and people (John et al. 2025; Wolniak & Stecuła 2024). Some argue that smart city characteristics have only four characteristics, including economy, society, environment and government (Yigitcanlar et al. 2020). Although the NSW Government does not appear to differentiate between smart cities and smart city applications, scholarship views "smart city" as an umbrella concept of the use of technology, including AI within urban environments for the benefit of progressing urban and environmental efficiencies, development, discourse and social inclusion and equity (Makkonen & Inkinen 2024; Wang et al. 2021).

One point of significance from the literature for our present purposes is this: scholars regard smart cities and smart places not only as environments that adopt technology to plan them. A key feature of what it means to have a smart city or place is that they include this major requirement: appropriate accountability and mitigative measures must be put in place to counteract risks created through the use of AI including: (1) inherent bias of AI and associated data sets, decisions and processes; (2) the lack of transparency afforded by the use of AI in urban planning; (3) consideration of privacy concerns, including data usage and public trust; and (4) appropriately rigorous urban governance and ethical considerations of AI processes, and enforceable consequences by appropriately meaningful and applied human oversight (Sanchez et al. 2025; Wang et al. 2021; Wolniak & Stecuła 2024; Ye et al. 2025). This is required to deal with what scholars have acknowledged as the inherent requirements of good planning: built environments designed to address a set of ever evolving, heterogeneous solutions, often accompanied by vague goals and difficult to measure outcomes (Dameri 2013; Gracias et al. 2023; Makkonen & Inkinen 2024; Ramaprasad et al. 2017).

Thus, a smart city or smart place uses AI, but only if the use of such technology is done with proper due diligence and transparency, dealing with inherent biases, so that the essential needs of PWD are appropriately addressed through a combination of human oversight and legal regulation, including the adoption of appropriate standards (Wang et al. 2021; Wolniak & Stecuła 2024).

Returning then to the NSW Government's approach, we need to consider how each of the Strategy, the Principles and the Framework might currently apply to the use of AI in planning. The Strategy discusses the need to develop AI responsibly and to manage risks created by the development and use of AI, including the risk of disability bias in AI systems. It adopts a risk-based approach to deployment of AI (Artificial Intelligence Strategy n.d). It is not clear whether the Strategy has been adopted as a legally enforceable standard.
The Principles are described as "mandatory, ethical guidelines" governing the development and use of AI by agencies (see NSW Circular DCS-2020-04). Once again, it is not clear whether the Principles are adopted as a legal standard. The Principles relevantly include (1) community Benefit: AI should serve citizens "effectively"; (2) fairness: agencies should

mitigate but not necessarily eliminate biases in the development and use of AI and (3) accountability: agencies should ensure human oversight and responsibility in AI-informed decisions. The Principles are noble in their aims, emphasising the need for regular monitoring of the AI, diverse and inclusive data, and human intervention to mitigate risks, particularly biases and systemic errors.

The most detailed document is the Framework. It is also expressed as being "mandatory" for all NSW government agencies (NSW Artificial Intelligence Assessment Framework n.d.). Once again, it is not clear whether the Framework is being adopted as a legally enforceable standard. The Framework is expressed to be limited in its operation, intended only to work alongside any requirements relating to the use of AI agencies may have in place as well. It applies to all AI projects over AU$5 million or those which involve "residual risks" presented by AI. Apart from the exclusion of projects that do not meet this threshold, another key limitation of the Framework is that it does not apply to commercial, off-the-shelf AI products without customisations.

Overall, while the Government's current approach to the use of AI makes some attempt to consider negative impacts on PWD through its use, the legal significance of each of the Strategy, the Principles and the Framework are not entirely clear. If they create legally enforceable standards, the Government should make clear that they have been adopted as such, including what action/s citizens can take to enforce these documents as legally enforceable standards. They could do so, for example, by making clear that a failure to follow any of the Strategy, the Principles or the Framework could result in a breach of the ADA. In the next section, we describe how such legally enforceable, specific AI standards could be used to address the risks to equality, transparency and accountability identified by scholars as risks posed by AI to PWD in urban planning.

Standards and disability discrimination laws

Standards and their use in a disability discrimination law context

The use of standards in disability discrimination law is, admittedly, not straightforward. As far as courts are concerned, breach of a relevant standard adopted under disability laws does not, in and of itself, necessarily satisfy a court or tribunal that disability discrimination has occurred in any given case (Access For All Alliance (Hervey Bay) Inc v Hervey Bay City Council (2005) EOC 93-372). To be given the force of law, a standard needs to be prescribed by applicable discrimination legislation as having that effect (Access For All Alliance (Hervey Bay) Inc v Hervey Bay City Council (2005) EOC 93-372 – subsequently adopted in Ryan (as Personal Representative of the Estate of the Late Ryan) v Sunshine Coast Hospital and Health Services [2021] FCCA 1537 and Hurst v State of Queensland (2006) 151 FCR 562; (2006) 91 ALD 575; (2006) 235 ALR 53; [2006] FCAFC 100). An example of such a standard includes the Premises Standards passed under the DDA.

Although legal method requires proof that discrimination has occurred in each specific case, standards provide an important evidentiary function in discrimination claims, since they are part of the evidential context for claims of unlawful, disability discrimination. Apart from setting clear, minimum requirements that decision makers must meet (such as goals of

equality), they can provide a fundamental requirement necessary for the interrogation of decisions by governments through courts and tribunals, including decisions reached by or assisted by an AI: a requirement of clear record keeping. A mandated requirement to create and maintain detailed records for the development and use of AI responds in part to the concerns expressed by scholars surrounding a lack of transparency and accountability in the use of AI in urban planning. Without adequate records (evidence) to interrogate it is, in turn, near to impossible for a decision maker to be rendered accountable under a law, including under a discrimination law. Without the solid evidential basis that detailed record keeping represents, the roles of a lawyer and a judge to interrogate facts and determine legal accountability of a government decision maker are very difficult. As such, the adoption of standards that clearly require decision makers (such as planners) to document decisions throughout an AI system's life cycle can prove to be an essential first step in understanding what the AI (and the decision maker) are doing, including whether the AI is being used in such a way that it unlawfully discriminates against PWD.

Whilst we do not suggest for a moment that legal regulation through discrimination laws is a panacea to cure all discrimination against PWD, a failure to regulate minimum standards at all (including requirements of basic record keeping) will certainly do nothing to improve existing concerns surround the enforcement of Australia's disability discrimination laws (on this issue see, for example, Blackham and Temple 2020; also Allen 2010). Clear standards which require decision makers to follow detailed steps and corresponding record keeping can assist in establishing whether a decision maker complied with or departed from them, raising evidential questions for courts or tribunals about any such departure (see Ryan (as Personal Representative of the Estate of the Late Ryan) v Sunshine Coast Hospital and Health Services [2021] FCCA 1537). In disability discrimination cases, answering these questions assists courts in determining whether a breach (or compliance) has occurred with a relevant disability discrimination law.

In summary, while a mere breach of an applicable standard does not result in an automatic finding by a court or tribunal that there has been unlawful, disability discrimination, it can provide the required evidential base for interrogation of decisions made by governments, increasing the chances of enforcement of the law's intended purpose to prevent discrimination on the grounds of disability. As already discussed in Section 3, it is this aspect of enforcement that is an important aspect of the normative requirements of law (Krygier 2011; Zalnieriute et al. 2019).

Recommendations

As noted above, our first recommendation is that the NSW Government immediately clarify the legal significance of each of the Strategy, the Principles and the Framework. The development of these documents reflects an important first step in the use of AI by the Government and its instrumentalities. Clearly adopting the documents as legal standards is a further step the Government can take. In particular, insofar as the documents address risks to PWD (including risks created by biased data, algorithmic bias and risks created by a lack of transparency and accountability), these documents could be mandated as standards to be

applied under existing disability discrimination laws similar to the way in which the Premises Standards and Transport Standards have been adopted. The NSW Government could also make clear that any requirements created by a DIAP are legally enforceable as well, so that breach of the DIAP could constitute unlawful discrimination.

There are also several, specific AI International and Australian Standards that could be adopted by the Government immediately as legal standards too, including as part of disability standards. These include AS ISO/IEC 42001: 2023 (Information technology - Artificial Intelligence - Management System), which can be used alongside a series of other standards dealing with AI (such as AS ISO/IEC 38507:2022 (Information technology - Governance of IT - Governance implications of the use of artificial intelligence by organisations) and AS ISO/IEC 23894:2023 (Information technology - Artificial intelligence - Guidance on risk management). The most detailed AI standard currently available is AS ISO/IEC 42001:2023 (Information technology - Artificial intelligence - Management system). This standard offers a comprehensive framework for addressing new risks posed by AI, particularly around the quality of data and resulting bias, a significant concern in the critical literature on the use of AI in planning and its impacts on PWD. This standard requires organisations to develop detailed risk treatment plans, to clearly identify and implement controls to mitigate identified risks, and to conduct ongoing testing and monitoring to ensure that controls are working. Notably, the standard also mandates the use of AI impact assessments throughout the entire lifecycle of an AI (the timing of which assessments are to be set out at the outset of the project as well), and it states that those assessments must consider impacts of the AI on individuals, with ongoing reviews and updates on how those impacts are operating. This could be mandated to consider impacts on PWD.

The standard also mandates (1) internal audits and executive governance review; (2) detailed accountability for each process and sign-off at various project stages; (3) performance evaluations of the AI, including acceptable error rates throughout AI system's operation; and (4) transparent quality monitoring of training data and end-user interaction. As such, this standard addresses many of the risks identified in scholarship to the goals of equality, risks of bias against PWD and the goals of transparency and accountability. Applied in the legal context of disability discrimination, it would also provide an evidential base for interrogation of the use of AI by decision makers.

This standard also cross-references AS ISO/IEC 23894:2023 (Information technology - Artificial intelligence - Guidance on risk management) to emphasise the need for detailed stakeholder consultations together with the use of relevant expertise for identified risks identified in stakeholder consultations, with both controls being required to mitigate identified risks. It also emphasises the need for clear documentation of the objectives of any AI, monitoring progress of the system throughout its lifecycle, adopting corrective measures throughout the life of an AI system and also employing accountability timelines (again, throughout the entire life of the AI system). It is detailed and prescriptive in comparison to the other relevant standards, addressing both individual and organisational risks. Once again, this standard can address concerns surrounding transparency and accountability identified in scholarship. Applied in the legal context of disability discrimination, it also provides an evidential base for

interrogation of the use of AI by decision makers too (once again, going to concerns of transparency and accountability).
Taken together, the standards we have outlined in this section have the potential to provide legally mandated AI standards aimed at preventing unlawful discrimination against PWD in a planning context. We do not suggest that every aspect of the standards outlined above are directly relevant to PWD at all times, since they clearly address the risks presented by AI more generally. Compliance with the standards would however go some way to providing the important, over-arching legal framework in which the risks identified by scholars as being presented by AI to PWD can be mitigated. The standards can assist to address the requirements of what it means to have a law (enforceability), as well as the essential pre-requisites of enforcement (transparency and accountability). The detailed approach to consideration of biased impacts of AI systems can also target concerns in the existing scholarship surrounding equality and inclusivity of PWD in urban planning.

Conclusion

The use of AI in urban planning presents great opportunities. With that potential though comes a series of risks to PWD. These risks exist because of bias in existing systems that are replicated and, potentially, exacerbated, through the use of AI.

In this article, we have recommended steps the NSW Government could take to immediately regulate the way it uses AI to plan Smart Places: adopting already existing Australian and International Standards for the use of AI as part of disability discrimination laws. We have recommended as well that the NSW Government immediately adopt its existing approach to the use of AI as clear, legally enforceable standards. In addition, we have recommended that the NSW Government adopt any DIAP as a clearly enforceable legal standard. Breach of any of those standards could then give rise to a corresponding right for a claimant to sue for unlawful discrimination on the grounds of disability if the legislature chooses to legislate for that right. These recommendations are steps the NSW Government can take to address the concerns raised by scholars surrounding inclusivity, transparency and accountability on the use of AI in planning.

We call for further critical discussion on whether the adoption of the standards we have outlined in this paper can be implemented by the NSW Government as a first, regulatory step to attempt to mitigate those risks. We also call for further future research on whether the NSW Government (and the Commonwealth) should implement legislation specifically regulating the use of AI and whether other legal frameworks, including State planning laws and basic administrative law principles, should also be specifically targeted at addressing the concerns raised in the critical literature surrounding the use of AI and its impacts on PWD in an urban planning context.

Disclosure statement

The authors report there are no competing interests to declare.

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Appendix B – Legal Definitions of Disability

"Disability" as defined by Section 4 of the ADA:

'(a) total or partial loss of a person's bodily or mental functions or of a part of a person's body, or

(b) the presence in a person's body of organisms causing or capable of causing disease or illness, or

(c) the malfunction, malformation or disfigurement of a part of a person's body, or

(d) a disorder or malfunction that results in a person learning differently from a person without the disorder or malfunction, or

(e) a disorder, illness or disease that affects a person's thought processes, perception of reality, emotions or judgment or that results in disturbed behaviour.'

"Disability" as defined by Section 4 of the DDA:

'disability, in relation to a person, means:

(a) total or partial loss of the person's bodily or mental functions; or

(b) total or partial loss of a part of the body; or

(c) the presence in the body of organisms causing disease or illness; or

(d) the presence in the body of organisms capable of causing disease or illness; or

(e) the malfunction, malformation or disfigurement of a part of the person's body; or

(f) a disorder or malfunction that results in the person learning differently from a person without the disorder or malfunction; or

(g) a disorder, illness or disease that affects a person's thought processes, perception of reality, emotions or judgment or that results in disturbed behaviour;

and includes a disability that:

(h) presently exists; or

(i) previously existed but no longer exists; or

(j) may exist in the future (including because of a genetic predisposition to that disability); or

(k) is imputed to a person.

To avoid doubt, a disability that is otherwise covered by this definition includes behaviour that is a symptom or manifestation of the disability.'