

21 November 2019

Federal Financial Relations Review Panel c/o
NSW Treasury
52 Martin Place
Sydney NSW 2000
via email: FFRReview@treasury.nsw.gov.au

Dear Mr Thodey and the Review Panel,

Prosper Australia welcomes the opportunity to provide a submission to the NSW Federal Financial Relations Review (the Review).

Prosper is an independent, not-for-profit organisation campaigning for economic justice. Our reform agenda derives from the work of nineteenth century philosopher, Henry George. Prosper's mission is to influence revenue policy by educating policy makers and the general public in the economics of locational advantage.

We have expertise in a number of areas relating to the Review, most notably in analysis of state tax systems and design of property tax reforms. In recent years we have published several commissioned reports on these topics which the Panel and Secretariat may find useful. These include:

- <u>Stamp duty to land tax: designing the transition</u> (2019), by Dr Tim Helm, a report considering how the transitional issues and political barriers standing in the way of this important reform can be overcome;
- <u>The transit transformation Australia needs</u> (2019), by Dr Chris Hale in conjunction with Prosper, which discusses beneficiary funding (value capture) for mass transit;
- The First Interval Evaluating ACT's Land Value Tax Transition (2016), by Dr Cameron Murray, a report evaluating the economic effects of this reform and assessing the revenue potential from nationwide adoption of the ACT model of selling planning rights.

Our full report library may be found at www.prosper.org.au/reports.

Our submission contains two parts. First, an overarching comment about the emphasis of the Review and the most productive directions for the Panel's work. Second, in direct response to questions 1, 2, 4 and 5 in the discussion paper, we describe directions for reform for various land-based taxes that NSW could adopt or modify, and provide an indication of revenue potential.



States have the best taxes - they just need to use them

One major theme runs through the discussion paper. It is an implicit premise that shapes the arguments in the paper, and it is not correct. We refer to the assertion in the Terms of Reference, which the discussion paper repeats without supporting evidence, that states have "limited taxation powers".

It is wrong because states have the constitutional power and administrative capabilities to tax land, as they already do in various ways. As has been well canvassed over numerous tax reviews, the return to land is an economic rent that may in principle be taxed without distorting behaviour. So states already have access to the most efficient - i.e. productivity and growthenhancing - set of taxes possible. Well-designed versions of these taxes also find favour on other standard policy criteria: vertical and horizontal equity, beneficiary funding, simplicity etc. As Nobel laureate James Mirrlees concluded in a recent UK tax review, "the economic case for land value tax is simple, and almost undeniable".

To be clear: it is not correct, as the discussion paper claims, that <u>all</u> taxes impose costs on the economy. And so it is not true by necessity that "a lower tax burden would support economic growth", as the Terms of Reference assert. These claims are not true of well-designed taxes on land rents even when considered in isolation, let alone when the associated spending is taken into account.

The Panel will be aware of the principles of tax assignment in a federation. One more important characteristic of land tax is that the immobility of the base makes it suitable for assignment to any level of government. At every level, voters may express preferences over tax and expenditure free from concern for competitive disadvantage, i.e. flight of firms or workers. So there can be no 'race to the bottom' competition with land taxes, no dark side to competitive federalism. Nothing stops states solving their revenue problems with land taxes except politics.

All of this has been covered in prior reviews and should be the <u>starting point</u> for any discussion of state revenue systems - not something that must be brought up again and again in response to unsupported assertions that states have "limited" taxing powers, and the implication that state taxes are necessarily inefficient and inferior to those used by the Commonwealth.

In public discussions of tax and federalism the superiority of land taxation is the elephant in the room. That is understandable: the politics seem daunting and the vested interests powerful. But for the Review to ignore it as well, and thus to proceed towards a conclusion that states must be rescued from budget pressures or supported to abolish inefficient taxes with the help of the Commonwealth, would be a major error given how comprehensively this ground has been trodden in the past. The discussion paper leans in this direction, and the Panel would be well advised to steer clear of doing so as well, lest it render this review a lost opportunity to promote rational tax reform.

We also recommend the Review clearly demarcate questions of the quantum of state funding - how can future needs be met, and how can stamp duty abolition be funded? - from questions of the design of Commonwealth support - how can state autonomy and flexibility be preserved despite vertical fiscal imbalance? The discussion paper blurs these distinct questions.



There are legitimate issues with the latter that might be solved via hypothecation of income tax or other means of removing the strings from Commonwealth funding. But these would be inferior solutions to the former, since states already have all the taxing powers they need.

A note on the politics of federalism and the role of the Review.

The political incentives that erode accountability and are toxic to tax reform in Australia's federation are obvious. States are happy to bank political points from cutting their own taxes, but prefer to 'cry poor' and transfer the pain of raising more revenue to the Commonwealth. The Commonwealth in turn wants to cut ribbons in areas beyond its constitutional responsibility. Vertical fiscal imbalance and tied funding inevitably grow through time as a result of this dynamic; they are a product of the underlying politics and cannot be willed away by those who bear half the responsibility.

If the Review is to be seen as more than an elaborate and resource-intensive exercise in the same game of political cost-shifting, of revenue without accountability, the Panel will need to take seriously the aspirations to 'sovereignty', 'autonomy', 'dynamism' and 'rewarding state-led reform' expressed in the Terms of Reference by doing justice to the question of how states could raise more revenue themselves - which means, primarily, from the economic rents of land.

To support that work we describe some of the opportunities below.



<u>Practical options to modernise NSW's revenue base and reduce dependency on the Commonwealth</u>

Broad-based land tax

The case for abolishing stamp duty has been widely made. We offer three points for the Panel's consideration.

First, the assumption that a land tax replacement is necessarily too politically challenging - which the property lobby has lamented more loudly than anyone else - is wrong. Prosper has recently outlined a detailed plan for enacting a fair, efficient, and budget-neutral transition to land tax that need not impose significant political pain (see our report <u>Stamp duty to land tax: designing the transition</u>).

The plan involves:

- Credit against future land tax (i.e. a voucher) for duty-payers over the last 10 years, which would cover approximately 40% of property owners;
- Two optional elements:
 - An option for new buyers to opt-out from land tax, offered in the early years of the reform only;
 - A phase-in to the full land tax rate (e.g. over three years);
- A higher land tax rate for 10 years to recover the budget cost of these tax concessions, reverting to a revenue-neutral rate beyond that; and
- A universal tax deferral option, which would prevent any land tax payer facing liquidity issues, and with interest at commercial rates would also generate significant additional revenue for the state.

Second, it is almost self-evident that replacing stamp duty revenues by increasing or broadening the GST, as the NSW Treasurer has suggested, would be a bad idea.

There are numerous disadvantages to this proposal relative to states going it alone with a replacement land tax. One is distributional: it will result in windfall property price gains at the expense of any consumers not fully compensated through the income tax and transfer system. Another is that it would be significantly more difficult to implement, since it would require unanimous inter-governmental agreement, federal legislation, renegotiation of the GST-exempt boundary, and design of compensation for low-income households. Finally, it would further reduce states' autonomy over their revenue bases and accountability to their residents in relation to taxation - the very principles ostensibly driving this review.

Whether the Review supports this rehashed Property Council ambit claim will be a litmus test for its credibility.

Third, stamp duty reform as usually discussed is revenue-neutral. But the first port of call if additional revenue is required for any reason is, of course, also land tax.

The discussion paper tells us that "states will need to modernise their tax systems", and repeatedly refers to productivity and economic growth. According to the OECD's assessment of



tax policy¹, how to modernise taxes for growth is clear. The OECD's ranking puts recurrent property taxes top of the list; broad-based consumption taxes, personal income tax, and corporate income tax then follow. Taxing land rents before all else is what a growth-enhancing, modern approach to tax means in practice.

Land in NSW is worth \$2.2 trillion and generates an income of around \$70 billion per annum (assuming a conservative yield of 3% and ignoring capital gains).² Just one-third of that could cover the \$20 billion that the discussion paper describes as the present-day equivalent of the long-run (2056) 'fiscal gap' arising under business-as-usual. So the size of the base imposes no practical limit on revenue potential.

Land income is also not the product of effort, innovation, entrepreneurial risk-taking, or investment - it is the product of scarcity, an economic rent. So as sensible as some GST-broadening measures are in the short run, the ethical reasons for eventually taxing land rents in preference to taxing consumption are obvious. Why should anyone ever be taxed for buying tampons or visiting the dentist or paying for their child's education so long as landowners are getting an income for free?

No one suggests taxing a significant portion of this \$70 billion immediately (except as a strawman). That would be unfair to current owners. The point is that the base is more than adequate for all conceivable long-run spending needs, and on both fairness and efficiency grounds the principled case is inarguable.

A useful contribution of the Review with respect to developing options for reform would be to promote these facts and point to the importance of investigating fair and efficient and politically attractive means of transition to a greater role for land taxation. Such an investigation could build on Prosper's work, and should be undertaken by an independent, respected agency such as the Productivity Commission, so that the conversation around implementation of land tax can be depoliticised and so that all states may benefit from the findings.

If reform directions today should be driven by long-run considerations, as the discussion paper suggests, is a 37-year transition to taxing one-third of landowners' recurrent income really impossible? We think not, and think tax reform is best served by publicly recognising the significance of transitional issues, and the importance of tackling transition as a distinct analytical task - rather than dismissing an increased role for land taxation as impractical merely on the basis that this work has not yet been done.

Higher developer charges for infrastructure

States could raise additional revenue by charging land developers the full cost of state-funded infrastructure provided to facilitate that development or mitigate its impacts on existing residents, and by ensuring their local governments do the same for local infrastructure.

¹ Johansson, Heady, Arnold, Brys and Vartia (2008), Tax and economic growth, OECD Economics Department Working Paper No. 620

² 5204.0 Australian System of National Accounts, Table 61. Value of Land as at 30 June 2019



As the Productivity Commission points out when arguing this position in its 2014 *Public Infrastructure* inquiry report, this would also provide developers with the right incentives when deciding where and how to develop land. That would ultimately reduce the infrastructure cost requirement for any given population, easing budget pressures on the expenditure side too.

NSW already does better than most by levying Special Infrastructure Contributions (SICs) for state-provided infrastructure in defined areas. Even so, the levels are too low. The first major SIC, beginning in 2011 for the Western Sydney growth areas, was designed to recover only 50% of the cost of state infrastructure attributable to new development, excluding capital costs for school, health, police and emergency service facilities. The other major SIC that has been implemented aimed to raise only 15% of the relevant infrastructure cost.

Public information on the overall cost of development infrastructure is scarce and the SIC system has never been subject to public evaluation.

However we have compiled figures from the NSW Department of Planning, Industry and Environment to show that under-recovery of state infrastructure costs directly related to development has cost NSW taxpayers at least \$6 billion since the SIC scheme began (Table 1).



Table 1: Estimated costs of infrastructure for new development and revenue from SICs³

	Infrastructure cost attributed to development (\$bn)	SIC cost recovery (%)	SIC revenue (\$bn)	Taxpayer cost (\$bn)	
Current SICs		!			
Western Sydney	5.8	50%	2.9	2.9	
Hunter	3.1	15%	0.5	2.7	
Gosford	-	-	0.1	-	
Proposed SICs (incl. modified	Western Sydney areas)		,	,	
-NW Sydney	+1.8 (above current)	50%	+0.9	+0.9	
-W Sydney Aerotropolis	-	-	-	-	
-SW Sydney	-	-	-	-	
Greater Macarthur	1.6	-	-	-	
Wilton	-	-	0.8	-	
Bayside West	-	-	0.1	-	
Rhodes	-	-	0.1	-	
St Leonard's + Crow's Nest	-	-	0.1	-	
TOTAL known	\$6.4 billion				
TOTAL based on 50% cost rec	\$9.4 billion				

If the 50% approach applied to Western Sydney also applies to the other proposed SICs, and the incremental infrastructure costs from expansion of the western Sydney growth areas are similar to those announced thus far, we infer that the taxpayer subsidy to new development in NSW in SIC areas alone might be as high as \$10 billion. Either way, a significant burden is being borne by NSW taxpayers that could instead be recovered from the beneficiaries of the spending.

We wish to bring three additional points about developer charges to the Panel's attention.

First, as the Henry Review and Productivity Commission recognised, "developers pay developer charges". Concerns expressed for housing affordability via pass-through to prices are misplaced or, more often, deceptive. Economists, planners and valuation experts agree that the economic incidence is on the landowner at the time of announcement of the charge.

As Murray (2018) explains and demonstrates econometrically:

³ Source: Based on Department of Planning, Industry and Environment SIC plans. Dashes indicate no public information available. Warnervale/Wyong Town Centre SICs (75% cost recovery of \$40m) not shown.



The economic incidence of developer charges is on the landowner, whose value is diminished by the charge, which all potential bidders will account for in their assessment of its value. It should have no effect on the assessment of the sales prices or volumes made by developers, which are all based on market assessments. For a developer who owns land, this land is now a sunk cost, and additional charges cannot be 'passed back', as they are in the position of the landowner in the previous case.⁴

Second, the idea that full cost recovery might deter development - and if so that this would be a problem - is misplaced on several grounds.

If a particular development adds less value to the existing land use than the costs it imposes on society, why should the general taxpayer subsidise it? Even if the infrastructure provided is 'gold plated' or some elements of it have benefits less than costs, why should taxpayers wear the bill? If inefficient costs are the costs incurred by the state in response to development, they are still the true social costs of development. They are a reason to scrutinise infrastructure planning and delivery more closely, not to shift the burden of poor choices from developers to the general taxpayer.

Moreover, a closer look at the economic literature actually suggests the relationship is the <u>inverse</u> of common intuition and industry claims: higher developer charges promote faster, not slower, development. This is because development is a matter of timing as well as type (it is a 'real options' problem). Higher developer charges reduce the payoff from waiting to develop land to a higher value use, thus encouraging more development sooner. More strongly binding and more certain planning restrictions likely do the same, despite developers' claims to the contrary.⁵

Third, while the practice of partial cost recovery from developers when benefits also accrue to non-development properties is appropriate, there is no rationale for less than full recovery of the developer portion of the total cost (determined via benefit apportionment). And the lower the developer portion, the greater the case for broader value capture, which is discussed below.

In summary, more efficient and equitable developer charges are a quick-win source of state revenue that can be enacted by improving the use of existing instruments.

Capturing planning windfalls

Developer charges are best thought of as cost recovery charges, paid out of the value generated by changing land use and therefore perfectly economically efficient. But rezoning windfalls often exceed the costs of necessary infrastructure, which means taxation in excess of narrowly defined infrastructure costs can raise additional revenue without harming productivity and economic growth.

⁴ Murray (2018), "Developers pay developer charges", Cities 74: pp1-6

⁵ Murray (2018) and Murray (2019), "Time Is Money: How Landbanking Constrains Housing Supply", working paper available at SSRN: https://ssrn.com/abstract=3417494



Rezoning and development are of course distinct processes and need not occur at the same time. The correlation between public infrastructure costs and private rezoning gain is also imperfect, so ideally the two should be addressed with separate instruments.

The appropriate roles for these instruments involve developer charges based on cost to provide efficient development incentives, and rezoning value capture based on land value gains to capture benefits otherwise received by landowners as an unearned windfall. Transparency over development charges means land value uplift will reflect the gain from change of use <u>net</u> of developer charges - thus the existence of two instruments does not mean 'double taxation'.

The ACT's system for rezoning value capture - the Lease Variation Charge and new land release system - is a working model that could be adopted nationwide. In Prosper's report on the ACT tax reforms Dr Cameron Murray estimates that had the ACT's system been in place nationwide, states would have raised \$11 billion over the 2014-15 financial year, including \$4 billion in NSW.6

We have updated these numbers for house price appreciation and sales rates to provide a more current picture. In today's terms, adopting the ACT model would raise NSW around \$8 billion per annum, or 1.4% of GSP (Table 2). This is approximately double the existing land tax, and more than the current level of stamp duty.

If NSW simply stopped giving away windfall gains by rezoning land for free, that is, it would do 40% of the job of closing the long-run 'fiscal gap' described in section 3 of the discussion paper (3.4% of GSP by 2056). The revenue lost from giving away valuable assets to connected or lucky landowners is massive. And the dampening in underlying incentives for corruption would be a valuable side-effect of this policy.

In summary, revenue from planning windfalls could raise enormous sums for NSW with adoption of instruments already used elsewhere in Australia.

⁶ The First Interval - Evaluating ACT's Land Value Tax Transition, p28.



Table 2: Estimated revenue from adoption of ACT system of capturing planning windfalls⁷

	Capital city median price	Private new dwelling completions	Price ratio	Dwelling ratio	Total markup	Revenue 2018-19 (\$m)
NSW	\$805,000	73,420	1.3	15.0	20.0	8,218
Victoria	\$635,000	64,953	1.1	13.3	14.0	5,735
Queensland	\$492,000	39,008	0.8	8.0	6.5	2,669
SA	\$428,000	11,942	0.7	2.4	1.7	711
WA	\$436,000	16,387	0.7	3.4	2.4	993
Tasmania	\$459,000	2,691	0.8	0.6	0.4	172
NT	\$389,000	768	0.6	0.2	0.1	42
ACT	\$604,000	4,882	1.0	1.0	1.0	410
Total						18,949

Other value capture

Value capture other than from rezoning offers a third means of tapping land value gains for state revenue. The Productivity Commission, Infrastructure Australia and others have in recent years endorsed the view that states should capture more of the benefits from infrastructure projects which otherwise flow into capital gains for landowners.

The revenue potential is huge, and states capture only a small amount via existing taxes.

Land in NSW has historically grown by an average 7% per annum, which in current terms is around \$150 billion per annum. Stamp duty and land tax by contrast collect about \$11 billion. That \$150 billion is an unearned windfall in the sense that it is not the product of effort, innovation, risk-taking or investment, but of physical scarcity and chance. Even if future growth were half the historical rate, taking just one-quarter of these annual windfall gains could completely close the \$20 billion per annum (present value) 'fiscal gap' identified in the discussion paper.

Everything said above of the efficiency and ethics of taxing recurrent land income applies doubly to land value gains. The standard case for value capture, which is usually seen as most applicable to rezoning and infrastructure provision, is founded on this. So long as capital gains are being given away for free there is no principled case for taxing socially worthwhile activities. Why tax employers for employing and workers for working to the tune of \$10 billion per annum, for instance, when landowners are getting a windfall 15 times larger for free?

⁷ Sources: ACT Suburban Land Authority 2018-19 annual report (total SLA return), ACT 2018-19 Statement of Finances (LVC revenue), CoreLogic capital city medians (Sep-19), ABS 8752.0 dwelling completions (trend).

^{8 5204.0} Australian System of National Accounts, Table 61. Value of Land as at 30 June 2019



For public transport infrastructure the case for value capture is particularly strong. Prosper's recent report <u>The transit transformation Australia needs</u> covers the rationale, the need, and the means of doing this in detail.

Transit infrastructure has certain features, namely spatial concentration of benefits, that make it well suited to project-specific value capture instruments, such as geographically defined betterment levies. This is the usual understanding of value capture - a 'manual' approach.

However there is an alternative way to operationalise the principle - an 'automatic' approach - which does not attempt to isolate particular sources of benefit but rather embeds value capture into the tax system. This treats value capture as an outcome, not an instrument.

One option to achieve this is a land value uplift tax payable upon sale. It could be realisation-based as per Commonwealth capital gains tax, or based on accruing gains assessed via statutory valuations with tax liabilities carried forward at interest. The latter would be preferable on efficiency grounds, and administratively feasible thanks to statutory valuations. While partial taxation of capital gains already occurs via the income tax system, there are no constitutional barriers and few practical obstacles to its introduction by the states if limited in scope to real estate in this way.

Since states control many of the levers that determine land value growth within their jurisdiction, most notably transport and planning, this proposal rather than hypothecation of a portion of all income tax would be a better means of devolving some income tax powers from the Commonwealth to the states. It would produce better incentives for states to invest in projects which have benefits that cannot be captured via user charges but spill over into land value.

In summary, the potential for revenue-raising via value capture is huge. There are well understood and tested ways of doing this on a project-by-project basis, and we encourage the Review to recommend their adoption more systematically and to raise more revenue than at present. While there are no working models of large-scale 'automatic' value capture yet in operation in Australia, there is a promising means of doing so via general land uplift taxation. We therefore recommend the Review highlight this possibility as an alternative to 'manual' value capture, and lay out a path for further investigation of specific models for policy design and implementation.

Other opportunities

The previous sections described four major opportunities for modernising state revenue by taxing land rents: broad-based land tax to replace stamp duty, higher developer charges, planning windfall capture, and general value capture. Some of these are implementable with minimal additional analysis required. For others, we have indicated the nature of the work required and how the Review could advance it.

We have also identified a range of other policy reforms relating to land use and ownership worthy of consideration. These have potential to ease budget pressures and/or support other outcomes without detriment to productivity or growth. If all were adopted the annual budget impact could be in the order of \$3-4 billion.



First, vacant property taxation. Land and developed properties held for speculative purposes are a waste of resources, the consequences of which include poorer housing affordability and slower economic growth. Since 2007 we have investigated the extent of unreported vacancies and their influence on housing affordability via our 'Speculative Vacancies' report series.⁹ One response is vacant residential property tax, such as that introduced in Victoria and Vancouver in 2018. While their revenue potential may be minor, these policies can improve housing access in ways that make space for abolition of more costly and less efficient policies. Significant penalties must be imposed for failure to self-declare.

Second, First Home Buyer assistance. Grants and duty concessions cost NSW around \$0.5 billion per annum. There is growing understanding that these measures offer poor value-for-money, and due to their capitalisation into property prices largely work to the benefit of vendors, not buyers. These schemes should be analysed by an independent agency capable of giving states an authoritative evidence base and impartial advice. Such a review may provide an impetus to introduce more effective first home buyer support, such as a land rent scheme.

Third, local government dependency. Operating and capital grants to local governments cost NSW taxpayers around \$1.5 billion per annum. Yet local governments have access to a highly efficient base - property taxation - which states should be encouraging greater use of. While these grants may support horizontal fiscal equalisation between local governments (i.e. equalising capacities between richer and poorer or faster-growing and slower-growing areas), there may be ways to do this without vertical fiscal imbalance and costs to the state budget. For example, state grants to local governments could be funded by a state surcharge rate that applies to all local government areas and is collected by LGAs on behalf of the state. Abolishing policies that increase local government dependence on state funding, such as rate-capping, is another means by which states can reduce the fiscal burden of local government.

Fourth, tax bracket indexation. Bracket creep for inefficient taxes harms productivity and growth, but bracket creep for efficient taxes does not. Rather, it provides revenue to abolish inefficient taxes and can thus improve the efficiency of the tax mix, gradually and automatically. While NSW's land taxes (like those in other states) are less efficient than they could be, they are more efficient than the alternatives. Our calculations put the cost to NSW taxpayers of land tax threshold indexation in the order of \$1.5 billion or more. We recommend the Review consider whether there are any principled reasons for indexation, and note the revenue potential from altering this policy.

Fifth, resource rents must be investigated. Tradeable water rights are expected to grow into a drought-challenged future. Scarcity rents will ensue. The valuation of such water rights has not been compiled by the ABS since 2012-13. The Foreign Investment Review Board maintains some transparency over foreign ownership on a volume rather than value basis. ABARE has produced some work in this area but clearly there is scope for deeper analysis.

Whilst we recognise a Capital Gains tax is levied by the Commonwealth on water traders, there is a need for a leasehold to ensure an efficient use of water is maintained. A leasehold fee of 2%

⁹ Prosper, <u>Speculative Vacancies</u> series (most recent June 2019).



should be chargeable on all permanent entitlement water holdings. Short-term traders could be charged a higher rate to deter rent-seeking.

With NSW water restrictions recently announced, commercial users of bore water above a significant threshold should also be investigated for possible scarcity rents.

Additionally, the taxation of natural monopolies in gaming and fishing licenses, and forestry rights could be further explored. Such a pivot could be used as a tax shift, reducing the impost on the productive sector.

Concluding remarks

Prosper commends the NSW Government for its willingness to keep tax and federalism reform on the agenda and for committing to examine these topics in a thorough and principled way.

We are aware there are opportunities to improve the design of Commonwealth funding, and hope the Review reaches useful and practical findings in this respect.

But we also recommend the Panel not lose sight of the main game for productivity and economic growth, which is land tax reform. States already have all the powers they need in this respect, as we have described above. States are already free to act as autonomously as they claim they wish to be in reforming their taxes. This is an inconvenient truth for political game-players, but a powerful one for genuine reformers.

As our submission shows, the opportunities to better raise revenue from land rents are enormous. Reforms to GST and to Commonwealth grants appear as third-order issues in relation to this prize.

Yet the politics of taxing land will not move without the scale of the opportunity being appreciated more widely. We therefore urge the Panel to use the Review to broadcast this basic point, and to promote more serious consideration of policy design and transition mechanisms so that an expanded role for land-based taxation can move closer to reality.