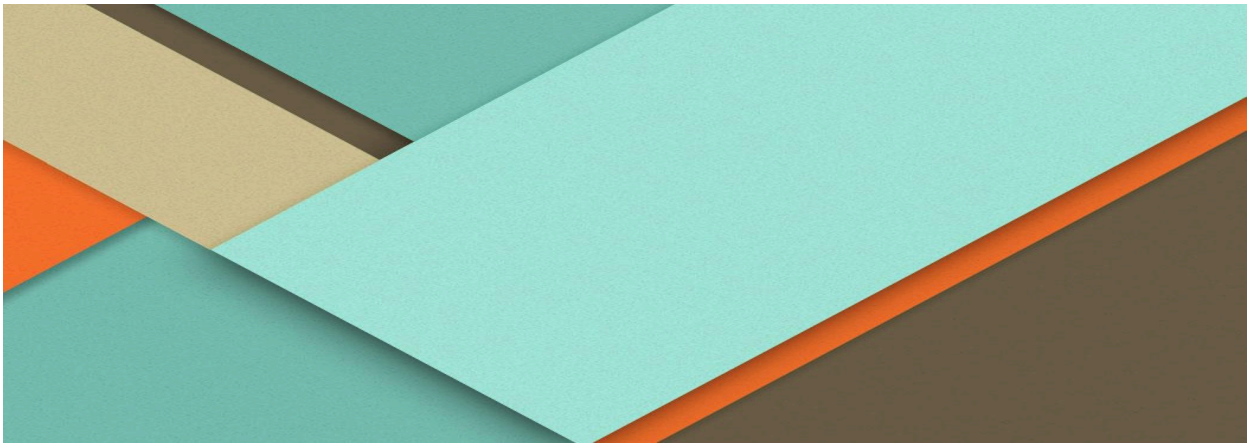

Digital Public Infrastructure for Driving National Housing Policy Efficacy and Outcomes

By Pia Andrews and Lisa Bennetto

For UNSW Sydney's City Futures Research Centre

The housing crisis in Australia is neither new nor simple, but at its core, the housing crisis undermines something fundamental: the idea that hard work should lead to security. When housing becomes precarious, everything else becomes more fragile. While digital and data public infrastructure can not fundamentally solve the housing crisis, it can help remediate systemic operational, observational and strategic challenges facing all levels of government, and provides a means to better coordinate and cooperate on policy.

This project was commissioned by UNSW Sydney's City Futures Research Centre for the Housing Analytics Lab (HAL). HAL received investment through the National Collaborative Research Infrastructure Strategy from the NSW Office of the Chief Scientist and Engineer, with additional funding and in-kind support from the Australian Urban Research Infrastructure Network, UNSW Sydney, Commonwealth Bank of Australia, FrontierSI, Mirvac, SGS Economic and Planning, Australian Research Data Commons, PEXA, National Shelter, Housing Australia, Community Housing Industry Association NSW, Tenants' Union of NSW, and Amazon Web Services.

The authors want to thank all participants and interviewees for sharing their expertise and experience so openly and enthusiastically. We hope this report helps to support hard conversations and useful solutions to drive better housing outcomes in Australia.

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Foreword from the Housing Analytics Lab

In November 2025, UNSW Sydney's Housing Analytics Lab co-hosted a Housing Analytics Roundtable with our project partner, Amazon Web Services. The roundtable examined the role of data, digital infrastructure, and emerging technologies—including artificial intelligence (AI)—in addressing housing affordability and improving productivity across Australia. Participants included representatives from Federal Government agencies, housing industry bodies, and national non-profit peak organisations.

A central theme emerging from the discussions was the need for coordinated action across Australia's federated system of government. Addressing the housing crisis requires collaboration across Commonwealth, state/territory, and local government inputs, alongside close engagement with industry, the not-for-profit sector, peak bodies, and academia. Participants strongly emphasised that a reliable, consistent, and nationally coordinated evidence base is essential to inform policy, reduce uncertainty, and accelerate delivery.

In particular, the roundtable highlighted the importance of national standards and digital public infrastructure as foundational enablers of housing system reform. Such infrastructure can enhance efficiency, improve predictability, and support better decision-making across the development pipeline and beyond. These discussions underscored the need to further explore both the appetite for—and the practical implementation of—digital public infrastructure capable of supporting housing productivity and affordability outcomes.

The Housing Analytics Lab is proud to support this commissioned research. The authors have engaged stakeholders from across Australia to examine how digital public infrastructure solutions could strengthen housing system performance and unlock innovation. Their work advances the national conversation by exploring what is possible when data, technology, and cross-sector collaboration are aligned in pursuit of shared goals.

No single sector can resolve Australia's housing crisis alone. Sustained cross-government and cross-sector collaboration will be essential, alongside the co-design and delivery of data-driven and technology-enabled solutions. This report makes an important contribution by investigating the art of the possible and outlining pathways toward a more productive, efficient, and affordable housing system.

Dr Edgar Liu

Scientia Professor Chris Pettit

Executive Summary

Australia's housing crisis has generated a significant appetite for change across all levels of government, as well as within the housing sector and broader community. However, many proposed responses focus on increasing funding to extend or accelerate existing approaches, rather than reconsidering underlying system design. This project engaged Local Government executives and subject matter experts from across Australia, New Zealand and the United States, drawing on policy, strategy and operational expertise to better understand systemic constraints and opportunities. Additional insights were gathered through interviews with State, Territory and Commonwealth officials, as well as stakeholders involved in housing construction and social advocacy.

Together, these perspectives informed the identification of targeted investments in Digital Public Infrastructure (DPI) capable of supporting improved coordination and more effective housing outcomes across jurisdictions.

To identify meaningful DPI solutions for housing, we began by asking interviewees about their perspectives on housing challenges more broadly. This approach generated deeper and more candid insights into shared constraints, systemic gaps and opportunities for scalable reform than would likely have emerged had we started with DPI-specific questions.

Without exception, interviewees pointed to economic and policy settings beyond their direct control as central drivers of Australia's housing challenges. Although these observations were not initially framed in digital terms, they demonstrated a sophisticated understanding of the problem. This foundation proved critical in informing the subsequent design of DPI proposals that interviewees later recognised as potentially helpful in reducing structural barriers to meaningful reform.

Opportunities were identified to address systemic challenges across three interrelated domains: **operational systems** for planning, managing and delivering housing; **observability systems** capable of providing holistic and near real-time visibility across the housing ecosystem; and **strategic systems** that enable more agile, evidence-informed policy and program adjustment to improve community outcomes and long-term liveability.

We found a range of pain points and lessons, but were also encouraged by the appetite for change, the ambition for something better, the openness to new ideas and technologies, and the understanding that real change requires leadership and cooperation. It became apparent that many parts of the housing system operate with limited understanding of each other's roles and constraints, highlighting a persistent gap in cross-jurisdictional engagement and coordination.

Beyond the challenges associated with building more houses faster, interviewees also identified vacancies in existing stock as an under-explored opportunity, and emphasised the balance between expediting compliance and preserving liveability and amenity, especially under heightened pressure to build more quickly.

There is significant inconsistency across jurisdictions in:

- access to data and digital systems,
- the interpretation and application of rules and regulations,
- the accuracy of population data (particularly where census counts fail to capture transient populations such as fly-in-fly-out (FIFO) workers, seasonal tourists, or remote Indigenous communities), and
- the absence of a shared understanding of what "good" housing outcomes look like.

These challenges are complex but solvable when treated as collective problems with coordinated action, rather than separate issues for individual jurisdictions to resolve alone.

Across Australia, Local Governments bring deep institutional knowledge and evidence-informed local analysis of housing systems. Recognising this capability is critical. Rather than treating councils primarily as regulatory gatekeepers, State, Territory and Federal Governments should engage them as expert partners with both the motivation and the practical insight necessary to drive meaningful national housing reform.

One survey response succinctly captured a broader national pattern: there is no shared definition of what "good" looks like in housing outcomes. Establishing such a vision is beyond the scope of this report; however, the absence of a clearly articulated and collectively endorsed definition of success represents a material gap. Without alignment on shared objectives, meaningful coordination and cooperation across jurisdictions will remain difficult to achieve.

"I think a clear statement of the future desired state for housing, and a desired future state for Local Government would be helpful [...] It would be good to see the concept of equality centered in the future vision and in discussion of challenges. The gap between those who own land and those who don't has grown substantially over my lifetime - I don't want to live in a country heavily stratified by economic class." – REGIONAL COUNCIL PARTICIPANT

Method

This report was compiled by Pia Andrews and Lisa Bennetto in close collaboration with the Housing Analytics Lab (UNSW) over the course of two short months (Jan-Feb 2026). The insights, analysis, recommendations and proposed solutions are informed by interviews, desktop research, relevant reports/papers, and domain expertise of the two authors.

The authors interviewed a diverse and broadly representative group of strategic, policy and operational staff from Local, State/Territory and Federal Governments, verifying and testing ideas and insights with independent and international housing experts. The authors complemented interviews with desktop research and sought:

- To understand key capabilities and responsibilities of Local Gov in Australia, and identify known and unknown contributors and dependencies for housing policy;
- To understand Local Government challenges, opportunities and aspirations in managing and contributing to better housing outcomes

- To identify what systems (digital and data) are in place, how they are used, where there are gaps, where there is repeatability
- To identify options for DPI investment to help drive better housing policy efficacy
- To identify what is needed to better observe and drive change, proactively managing housing outcomes, mitigating issues, and address trends as they arise

Over the course of two months, the authors interviewed 61 individuals from 49 organisations. This includes roughly 44 Local Governments planning experts (including at least one from every State and Territory in Australia), 5 State Government senior executives, 8 independent or international experts, 3 construction and housing industry representatives, and 2 Federal Government housing and policy experts.

The authors used Gen AI as a tool to help improve tone and consistency of the report, to explore concepts, and to help synthesise background and interview content.

Background Context on exploring DPI for the Housing Crisis

Australia's housing crisis is well documented. Participants in this research described a range of structural and cyclical conditions that have compounded over time, resulting in a complex and deeply interwoven policy challenge. The issue extends beyond economics alone; it is also profoundly human, reshaping daily life, limiting choices, and influencing long-term security and opportunity for households across the nation.

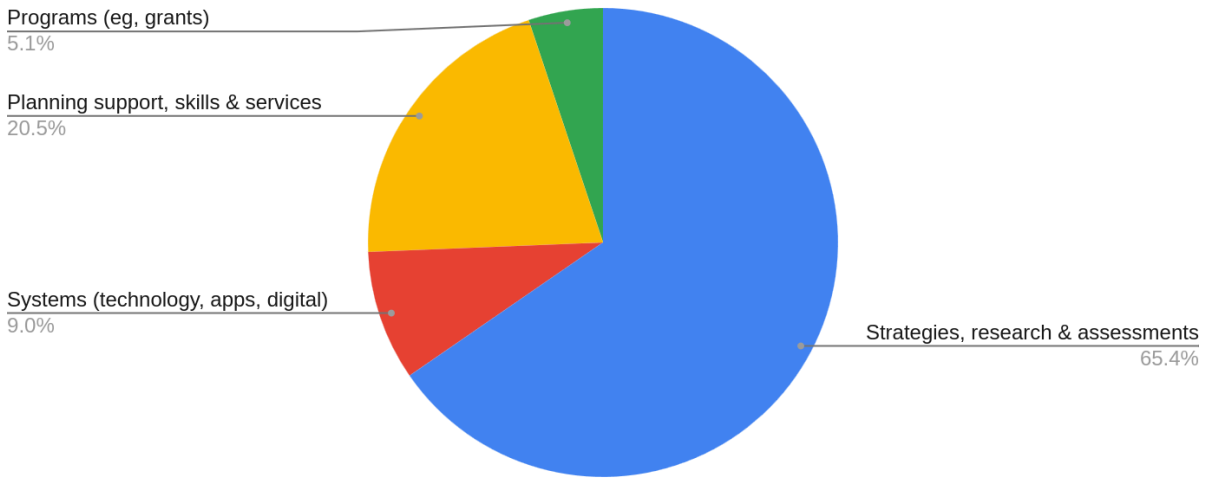
Despite the urgency of the housing challenge, systemic reform remains difficult when responses focus primarily on securing additional funding to do more of the same (albeit marginally faster or cheaper). Efforts centred solely on efficiency gains or short-term relief risk reinforcing the very inconsistencies and inequities the system is struggling to overcome. Meaningful progress will require causal and structural interventions that address underlying drivers of access and affordability, supported by solutions that are impactful and scalable at a national level, rather than bespoke and confined to local or regional application.

Over recent decades, the urban planning sector has shifted from paper-based systems to largely digital platforms. However, much of this transition has simply digitised existing manual processes rather than fundamentally redesigning how the system functions.

Where repeatable tasks, duplicated effort, common service needs or shared upstream pressures exist, there is strong justification for developing common solutions. Where such solutions are depended upon for driving regional or national policy and decision-making, are relied upon by multiple entities or can create whole of economy value, it is worth considering investment into solutions as Digital Public Infrastructure (DPI). Properly designed, DPI could help better manage housing in Australia through operational uplift, enhanced and shared realtime observability and to enable more coordinated, adaptive strategic action to improve policy efficacy and allow unintended consequences to be identified and addressed in a timely and coordinated fashion.

National Policy and Funding Context

At the national level, the Federal Government has elevated housing as a major policy priority, committing significant funding and reform measures, including $1.5 billion for the Housing Support Program as part of the $43 billion Homes for Australia policy intended to deliver 1.2 million new homes. Analysis of the first tranche of projects funded by the Federal Government Housing Support Program (78 projects totalling $50m for Stream 1) reveals the majority to be local (non-repeatable and non-scalable), strategy work, including 23 Master Plans and a range of research and case studies. In the absence of shared principles or a common vision, this work risks reinforcing fragmentation rather than resolving the systemic drivers of housing instability.



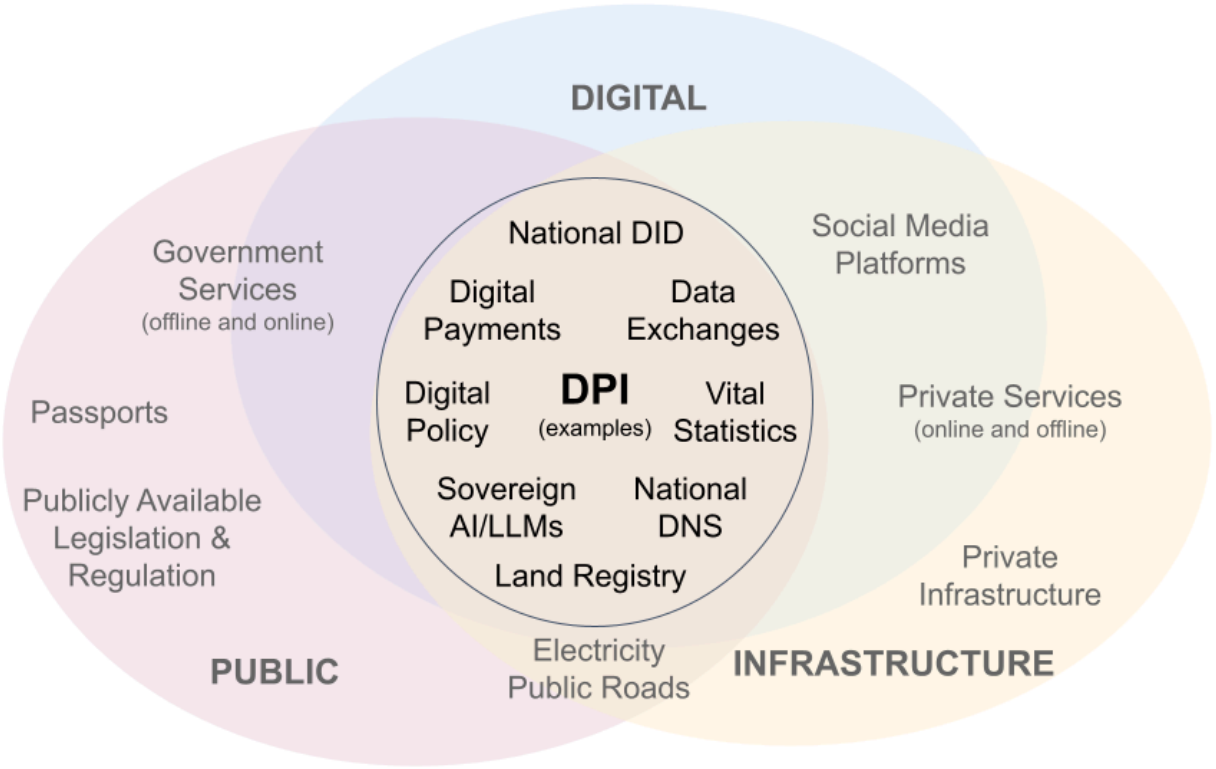
The total funding for systems in this first round is $6.7m, which includes three Artificial Intelligence projects (two for applications and one for digital planning), one upgrade to a State planning portal, one strategic transport model to support growth modelling, one upgrade to a geospatial information system, and one resource sharing platform.

Future funding rounds might benefit from prioritising systems that provide systemic responses to systemic challenges, such as proposed in this report. Such an approach would enable councils to work more cooperatively and collectively on scalable and shared solutions, rather than expecting (and funding) individual councils to address common challenges in isolation. Targeted investment could automate functions that require consistency, and free up scarce capacity for higher-value planning work and alignment of housing outcomes with local needs and community character.

DPI Definition and Principles

Digital Public Infrastructure (DPI) is a set of foundational digital systems that form the backbone of modern societies, a metaphorical and literal platform upon which the economy can rely, confidently innovate and thrive. When implemented well, DPI is aligned to national outcomes, enabling efficient, secure, trusted, inclusive and seamless interactions between people, businesses and governments.

DPI solutions often refer to national capabilities like a national digital identity, payment system, data exchange or digital legislation. What differentiates DPI from just any digital or data platform is that DPI sits at the intersection of digital, public and infrastructure, enabling national strategic outcomes and public benefits rather than just utility.



DPI is different to other digital (or data) infrastructure in that it needs to be built and operated in a way that maximises public benefits and reuse across the entire economy. Below are planning principles for DPI worth considering for any housing DPI proposals.

- **Foundational:** DPI systems should provide a foundational capability that is needed by multiple actors in the economy, not just one organisation or sector.
- **Agility:** design loosely coupled, modular architecture and systems.
- **Reusability:** standardised, uses existing systems and maximises reusability.
- **Publicly engaged:** bring community into DPI planning and delivery.
- **Inclusivity:** ensure the benefits are equitably accessible to all.

- **Scalable:** ensure DPI solutions can scale to the whole economy.
- **Resilient:** ensure DPI is reliable, secure and resilient to threats.
- **Default to open:** leverage open source and work in the open to enable competitive ecosystems and open markets around the capability.
- **Align incentives:** ensure ownership and delivery entities are purpose aligned.
- **Long term:** plan a sustainable approach and operating model.

DPI for Housing

DPI alone cannot solve the root causes of Australia's housing crisis. However, coherent, interoperable, shared digital foundations could help to mitigate the operational friction, observability gaps and strategic misalignment that continue to dilute the impact of broader reform. If designed collaboratively and grounded in Local Government realities, DPI could help enable a more coordinated operational, observational and strategic approach across all levels of government, without displacing democratic decision-making or professional expertise.

One important lesson on DPI from around the world is that when it is established outside of the public sector or without a persistent mandate, then even high value DPI can become either unsustainable (politically, financially, etc) or increasingly narrowed in scope to maximise profitability (undermining national objectives, policy outcomes and public good). Prototyping and experimenting outside of the public sector is fine for identifying workable solutions, but for DPI to have the largest public impact and operational sustainability, it is prudent to consider including it in the mandate and funding framework of a persistent public institution, in the same way that other public infrastructure is (like roads and sewerage).

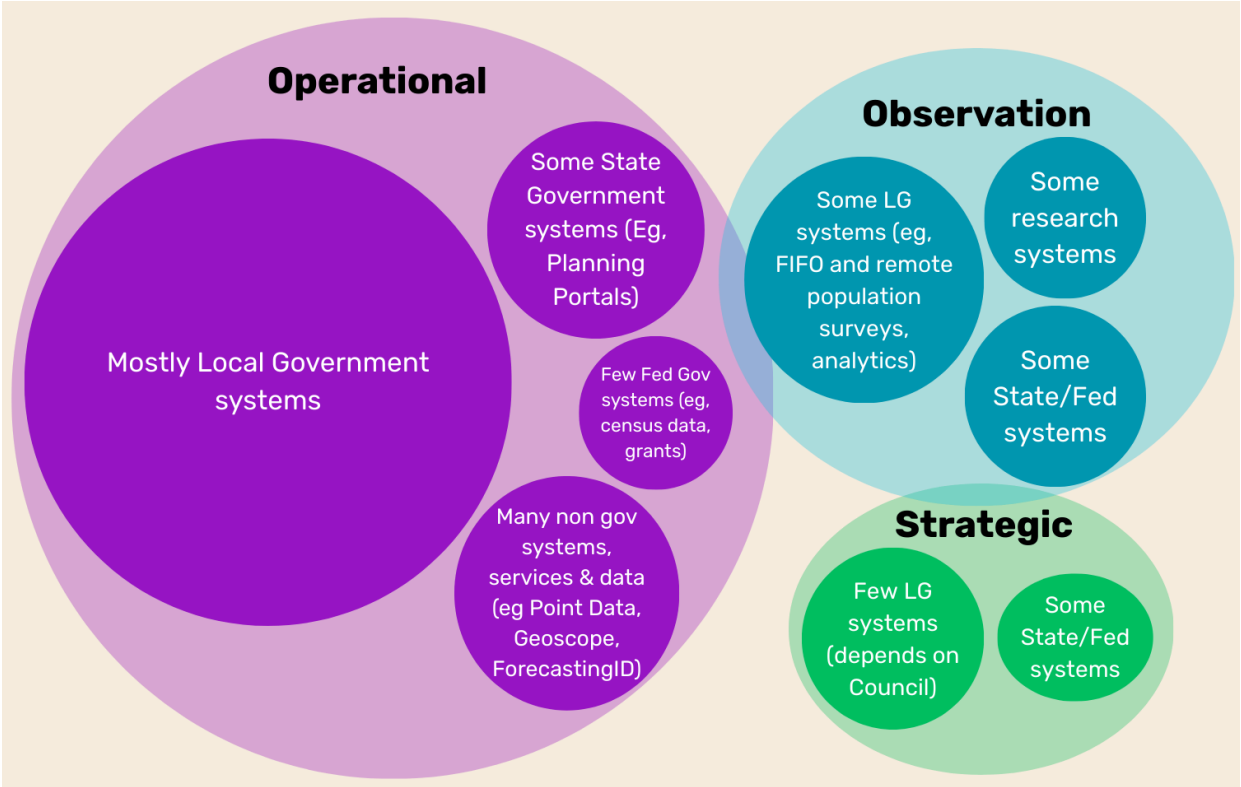
In the housing domain, we found a combination of government operated systems complemented by a large range of private sector services and systems. Three categories of systems emerged that provide a useful framing for housing digital (and data) infrastructure, also providing a useful reflection of where some key challenges lie.

The three categories of systems relevant to housing outcomes are:

- **Operational systems** - the business systems, applications, websites and data produced from the work of planning, assuring and managing housing policy outcomes. The operational category is the largest and includes all the platforms, applications and management tools required to manage housing and related services and planning, with most systems found in the 500+ Local Government environments. These include tools, platforms and applications that receive applications, assess, approve, map, monitor and operate housing programs; and functions ranging from building applications, compliance, building codes, approvals, project management, GIS systems, social, disability and other public housing management, plus all the associated systems that enable or support housing outcomes including waste

disposal, water, sewerage, utilities, education, public roads, public transport and health services.

- **Observation systems** - the systems and data used to analyse, understand, monitor and measure housing policy outcomes and impact. These include systems that combine and analyse data produced by operational systems combined with national statistics and other data to observe, analyse and understand the housing domain, sometimes with impact analysis, monitoring capabilities and data visualisation tools.
- **Strategic systems** - the systems are used to drive strategic or policy outcomes, liveability and other measurement frameworks, legislative drafting & publishing platforms, planning schemes, policy modelling & strategic planning tools, scenario testing, and public engagement capabilities where the community and/or stakeholders can contribute meaningfully to design, delivery and optimisation of policy, delivery and shaping where they live.



We observed strong interest in improving operational and observability systems, though not always with a clear connection to how such investments would translate into improved housing outcomes. Many stakeholders emphasised better access to data to enhance visibility of the problem. While greater observability is valuable, it does not by itself create the mechanisms needed to drive systemic, policy or structural change.

Similarly, the focus on streamlining and automating building approvals has not been matched by equivalent investment in strategic systems such as policy modelling tools, scenario testing, shared future-proofing principles or liveability measurement frameworks. This imbalance risks accelerated approvals without aligned trunk infrastructure; increased land speculation; heightened pressure on constrained labour and material supply chains;

and the delivery of housing that lacks supporting social infrastructure or alignment with local character and long-term community needs.

A shared understanding of the problem is also essential. Interviews with Local Government officers revealed a deep and long-standing appreciation of the structural causes, policy settings and market dynamics that have shaped housing affordability and access challenges over time. In contrast, interviews at Federal and State levels more commonly reflected a dominant framing of the issue as primarily one of housing stock, leading to policy responses centred on accelerating new construction, often with comparatively less attention to existing stock, trunk infrastructure or social infrastructure.

Local Governments demonstrated a holistic understanding of the housing ecosystem, with participants emphasising the need to balance new supply with sustainable planning outcomes, aligning growth with infrastructure capacity, and monitoring emerging "dark patterns" within the system—such as approvals granted without subsequent construction, rising vacancy rates, the impacts of short-stay accommodation, transient FIFO populations, underutilisation and overcrowding. Many also pointed to the importance of reframing the national narrative toward "the right housing at the right time in the right place."

No single jurisdiction holds all the levers or all the solutions to housing affordability and access. Yet each level of government tends to exercise its own powers largely in isolation, contributing to inconsistent (and at times inequitable) housing experiences across the nation. Systems that enable shared observability and coordinated strategic planning are therefore critical. Without them, policy responses risk remaining fragmented; with them, governments are better positioned to adopt a more test-driven, evidence-informed and genuinely holistic approach to national housing challenges.

The absence of structured strategic cooperation and alignment is also evident in instances where significant policy changes are introduced without systematic mechanisms for incorporating local feasibility analysis in advance. In these circumstances, councils and communities often lack formal channels through which to surface place-specific constraints, infrastructure dependencies or implementation risks prior to policy finalisation. The downstream consequence is often a proliferation of feasibility studies and one-off analytical exercises commissioned by individual councils (where resources allow) in order to interpret, assess and adapt to new policy settings.

The cumulative time and cost associated with this suggests a broader institutional inefficiency. A more coordinated governance model would involve shared strategic platforms that enable councils to participate in policy modelling, infrastructure sequencing analysis and scenario testing before housing settings are finalised. Embedding these capabilities upstream in the policy cycle would support more informed decision-making, reduce duplication, and strengthen the coherence and implementability of housing reform across jurisdictions.

Housing challenges & needs (Local Government insights)

Without exception, our local government interviewees view the housing crisis not as a failure of planning approval throughput, but as a convergence of structural, cultural, financial and systemic factors that sit largely outside their direct control, yet manifest most visibly at the local level. From their perspective, the housing challenge is not primarily one of speeding up planning or rapid construction of new stock. It is a complex interplay of:

- Structural economic incentives (and disincentives)
- The housing culture in Australia driving behaviour (the “Australian Dream”)
- Construction productivity, labour constraints and housing for labour
- Infrastructure sequencing and insufficiency in many areas
- Cost of living pressures creating overcrowding and invisible homelessness
- Financial disincentives for downsizing and full occupancy
- Poor and siloed observability (and data) of the housing domain
- Uneven capability across councils and inconsistency across States/Territories
- Poor public transport investment (suburbs assume cars creating a car dependency)
- Inconsistent and unrealistic modelling of growth, economic change and populations
- Political drivers, generic policy settings and upstream “captain’s calls”
- No shared vision of what “good” looks like for the future

Local government interviewees expressed their frustration about the “inaccurate assertion” that building approval processes are the root cause of Australia’s housing shortage. They argue that fiscal and taxation levers beyond their control (e.g. capital gains tax, negative gearing, stamp duty settings) which are critical to consider, and have observed many ad hoc programs over the years making the issue worse. They recommended a holistic policy approach that includes increasing stock, addressing occupancy issues (overcrowding and underutilisation), removing financial disincentives, increasing labour supply, reducing material costs, and aligning the roll out of infrastructure (trunk and community) to better address the housing challenge.

"No amount of data is going to change poor decision making." – METROPOLITAN COUNCIL PARTICIPANT

Below are key insights identified throughout the interviews, which informed key needs and potential DPI solutions. using the operational, observability and strategic categories.

Operational challenges

Some Councils shared they have skilled strategic planners, sophisticated operating systems, accurate data and advanced analytics capability; but many others do not. Access to tools for forecasting and scenario planning is dependent upon individual council budgets and available skilled workers. Many councils report that they pay non-government organisations (e.g. ID Profile, REMPlan, etc.) for these services as their budgets permit,

creating myriad point in time analyses but no persistent capabilities. Many Councils do not have access to these services at all.

This insight informed the need for solutions to be made available either as shared solutions (where Local, State/Territory and Federal Governments pool resources), as a free or heavily subsidised online service, or as open source solutions that Councils can easily implement.

"Federal Government could be a steward of commons: for data and rules." – REGIONAL COUNCIL PARTICIPANT

Rapid increases in construction targets were seen as challenging in the absence of corresponding uplift in labour capacity, supply chains, enabling infrastructure and planning services. Without supporting conditions, there is a risk that accelerated building programs may further inflate construction costs, a barrier to increased supply. Costs and labour uncertainty is creating a behaviour of approvals being unactioned. In Tasmania, Victoria, NSW, WA and SA, councils reported that many building approvals are not proceeding to construction due to financial non-viability. In Hobart, for example, significant projects are not "getting out of the ground" due to construction costs, labour unavailability and productivity constraints. In remote areas like the Pilbara, the "regional tax" on construction triples costs relative to metropolitan delivery and workforce housing for construction all further undermines feasibility.

*These insights informed the need to explore affordable materials for affordable housing and the operational barriers to novel and modern construction materials and methods (solution 8) as well as a need for better feasibility modelling (**Solution 3: Growth & Economic Modelling Platform**). It also demonstrated a need to monitor the impact of policy interventions across the nation so that lessons can be learned and successful remediations adopted where they are proven to work (**supported by Solutions 1 & 2**) .*

"Rapid construction is creating a hellscape in our area of low quality, single story, flat building to the border. Not building up, only building out, so utilities and roads/transport planning can't keep pace." – REGIONAL COUNCIL PARTICIPANT

"You can't compel anyone to build houses, you can only clear the way and create the conditions that encourage it." – REGIONAL COUNCIL PARTICIPANT

Several councils reported that they do not have a complete or accurate view of their existing housing stock. Interviewees highlighted the difficulty of tracking changes over time (such as subdivisions, redevelopments, extensions, demolitions or changes in use) particularly where there is no consistent mechanism for linking records across systems. While cadastre and address databases provide an important foundation, they do not always offer a reliable, longitudinal way to track dwelling-level change or condition. This

fragmentation limits the ability to monitor housing dynamics in a systematic manner. Some participants questioned whether introducing a national unique building identifier would be proportionate to the problem, noting potential governance, implementation and cost considerations. However, concerns about incomplete and inconsistent stock observability were widespread.

These insights suggest the need to explore whether a coherent data spine is required to enable accurate, longitudinal tracking of housing stock and change over time. This forms the rationale for considering **Solution 9: DwellingID** as a potential enabler of improved system-wide observability.

> ***"Digitisation of planning from paper to digital has dramatically increased data, but the capacity to use it [in LG] has not kept pace." – METROPOLITAN COUNCIL PARTICIPANT***

Observability challenges

Recent Federal funding has largely prioritised accelerating housing delivery to expand overall supply. Implicit in this approach is the assumption that increasing stock is the most effective short-term policy lever. While Local Government interviewees recognised the importance of boosting supply, many stressed that improving the occupancy and utilisation of existing dwellings is equally critical.

Participants highlighted the growing impact of short-stay accommodation (particularly in tourism and lifestyle regions) as a significant constraint on long-term rental availability and a contributor to rising prices. However, councils reported having very limited visibility into rental and short-stay occupancy patterns. This lack of insight makes it difficult to understand local market dynamics, track changes over time, or benchmark trends across jurisdictions.

More broadly, although Local Governments sit at the operational hinge point of housing delivery, they operate within fragmented systems characterised by inconsistent data standards, uneven digital capability, and limited interoperability with State, Territory and Commonwealth platforms. As a result, each level of government holds only a partial view of the housing system and lacks the ability to observe or manage it holistically.

Several Local Government participants noted that they have little visibility into the datasets and modelling used at State or Federal levels. Conversely, higher tiers of government reported difficulty understanding place-based constraints and on-the-ground implementation realities. Councils are frequently required to extract and supply data to other jurisdictions, yet rarely receive consolidated insights or analytical value in return. While some digital portals streamline submission processes, they generally do not strengthen Local Government's own analytical capability. Interviewees were also aware of

advanced geospatial and modelling tools operating elsewhere in the system, but these were not accessible to councils.

*These insights point to the need for a shared data and analytics commons, integrating government and non-government data sources, including occupancy data, with shared analytical capability available across jurisdictions. Such infrastructure would support improved data reuse, cooperation and coordinated insight generation (**Solution 2: Housing DEX**).*

"Local Government is treated as an extractive resource by Federal, State and non government research organisations. Where is the value to us and our work? Everyone is figuring it out on our own, why can't we share what works and what doesn't?" – REGIONAL COUNCIL PARTICIPANT

Population modelling is a foundational input into planning, policy design and infrastructure investment. While the Census remains a critical instrument for understanding Australia's population, it does not fully capture transient, seasonal or otherwise under-represented communities, including FIFO workers, short-term residents, and in some contexts Aboriginal and Torres Strait Islander communities who may be undercounted or whose patterns of mobility and household composition are not well reflected in standard datasets. This limits the utility of population data for certain planning contexts. The population dynamics of a tourism-based municipality differ from those of a mining region with large FIFO workforces, which differ again from regions where Local Government itself is a primary driver of construction activity. Policy settings that assume static or uniformly distributed populations can therefore misalign infrastructure funding, housing supply and service provision. Several councils reported undertaking their own surveys or commissioning bespoke analysis to better understand transient and under-represented populations for local planning purposes. However, these datasets are typically not shared across jurisdictions, resulting in duplication of effort and limited system-wide visibility. Others rely on public or private population projections that may not adequately reflect local realities.

*These insights demonstrate a need for improved coordination, sharing and methodological alignment around transient and under-represented population data to better inform housing and infrastructure decisions (**Solution 4: Populations for Planning**).*

"Census data is critical for planning, and yet data collection and representation of traditional owners and transient communities (FIFO, tourists, etc) is terrible. Under-representation of these populations obscures the real demand for infrastructure." – REGIONAL COUNCIL PARTICIPANT

Several interviewees called for more depoliticised approaches to infrastructure investment and clearer, more transparent infrastructure phasing frameworks. Others observed that

infrastructure decisions frequently lag behind or contradict planning signals, undermining community trust and sector confidence. Without shared visibility of underlying data, policy assumptions and cross-jurisdictional investment pipelines, housing and infrastructure sequencing remains reactive rather than strategic.

This insight supports the need to expand the role of and implement a consistent approach for State/Territory planning portals beyond building application management to include analytics, land supply, infrastructure capacity and sequencing visibility to support more coherent and coordinated decision-making. This contributes to the rationale for ***Solution 12: Consistent Planning Portals*** *as shared visibility platforms rather than purely transactional systems.*

"When governments commission major projects, it creates an immediate pressure on domestic supply (labour & materials). There needs to be national consideration of timing and supply for labour & materials." – REGIONAL COUNCIL PARTICIPANT

Strategic challenges

Housing policy and regulatory settings span multiple jurisdictions, yet there is no shared reference implementation of how these rules interact. Interviewees observed that, like data, housing rules are fragmented: each State and Territory operates distinct frameworks, leaving Local Governments to reconcile contradictions or gaps, while higher tiers often lack visibility into real-world implementation. Broad policy shifts were seen as insufficiently responsive to local variation. Tax settings such as stamp duty were cited as discouraging downsizing and contributing to underutilisation, while planning and construction constraints differ markedly between remote, regional and metropolitan contexts. Uniform reforms can therefore generate uneven or unintended effects.

These insights highlight the need for a shared, modelled representation of housing rules and their interaction with taxation, infrastructure, supply chains and demographic conditions. This underpins ***Solution 1: Housing Digital Policy Twin****, a shared reference implementation to enable consistent interpretation and scenario testing. Unlike* ***Housing DEX (Solution 2)****, which strengthens shared data and observability, the Digital Policy Twin focuses on the rules themselves, supporting coordinated and adaptive policy design across jurisdictions.*

"We don't know how to monitor the efficacy of policies and planning." – METROPOLITAN COUNCIL PARTICIPANT

Interviewees expressed concern that Federal funding timelines do not always align with practical delivery realities and may be driving unintended behaviours across the housing market and government system. For example, land release without aligned infrastructure sequencing was described as enabling "land flipping," contributing to price escalation. In some cases, competition between State and Territory Governments for Federal funding was seen to limit real-time data sharing with Local Governments. Tasmanian participants

also highlighted the long-term decline of social housing (from post-war levels to below 2% of national stock) as a structural shift that has fundamentally altered accessibility and affordability across Australia. Local councils are managing downstream impacts including homelessness, rental stress, key worker shortages and social and environmental pressures arising from rapidly deployed housing unsupported by essential infrastructure or misaligned with local context. While planning is frequently cited as the primary bottleneck, interviewees consistently argued that trunk infrastructure (transport, sewer, water, power and social infrastructure) is often the binding constraint. As one participant observed, "You can put all the houses up that you want, but the poo has to go somewhere." Infrastructure funding and sequencing decisions largely sit with State, Territory and Commonwealth departments, leaving councils to plan or approve growth without full visibility or control over infrastructure alignment. Many councils commission growth and economic modelling to understand policy and investment impacts, but these analyses are typically point-in-time, resource-intensive and sometimes inconsistent across jurisdictions.

*These insights reflect a need for a shared modelling platform (**Solution 3**) that would: (1) embed modelling as an accessible and continuous capability within Local Government; (2) establish a shared cross-jurisdictional view of assumptions and impacts; and (3) enable ongoing monitoring of policy efficacy and housing interventions over time. Such a platform would necessarily depend on housing policy settings being available in structured, machine-readable form, reinforcing the interdependence with **Solution 1: Housing Digital Policy Twin**.*

> ***"Pressure to rapidly build is creating long term challenges, including unsustainable or problematic social, economic and environmental conditions for communities. Good planning is more than compliance, it involves alignment to town plans, community character & public needs." – REGIONAL COUNCIL PARTICIPANT***

Another recurring theme was the absence of a shared national vision of what constitutes "good" housing or successful housing outcomes. Metrics are often framed in terms of the number and pace of approvals or "doors opened", rather than measurable liveability, affordability, tenure diversity or social cohesion. Councils feel that they are left to navigate contested density debates without clear alignment on national or state-level future states. The result is political friction and fragmented narratives. Without an agreed future state, our interviewees struggled to see how "more houses" will equate to better housing outcomes for their communities, especially where rapid construction of technically compliant new housing does not meet or align with community needs, values, local character or liveability standards.

*This insight informed the need for a national and consistently applied liveability standard, not just for energy efficiency but something that reflects what people need for housing to be considered liveable (**Solution 6: national liveability framework**).*

"Core contributors include homelessness and severe overcrowding, which are the dominant expressions of housing stress locally." – REGIONAL COUNCIL PARTICIPANT

Local Government sits at the operational centre of delivery, yet operates within structural and fiscal constraints that limit its ability to influence the broader system settings shaping those outcomes. Local Governments across Australia regularly have to commission analysis or reports, which are not shared in any persistent or searchable way for further reuse, leading to a lot of duplicative research, and low utilisation of commissioned analysis. Sometimes there are discrepancies between analysis by different levels of government creating real challenges in evidence-driven policy design or delivery. For example, in one case the State analysis was that a particular Council needed to free up hundreds more hectares in land for housing, when the Council's own analysis showed they had 130 years worth of land already available.

*These kinds of discrepancies were commonly reported from LG interviews, and reflect the need for a shared view of policy and modelling. This insight not only informed the need for shared policy and modelling tools (solutions 2 and 3) but also for a housing knowledge and information hub that enables sharing of reports, analyses, code, etc for broader, persistent reuse (**Solution 11: Housing Knowledge and Information Hub**).*

"Most authority lies with State and Federal Governments: Local Government isn't even in the Constitution. This can make it hard to steer or use policy levers. Some things need to be mandated." – LOCAL GOVERNMENT ASSOCIATION PARTICIPANT

Special insights on Artificial Intelligence (AI) in Housing

Most interviewees saw AI as having potential for housing: to enhance coordination and analytical capability in housing systems; to synthesise or compare content and data (like applications or plans); to support office productivity; and to experiment with assessing compliance, alignment to character/vision and policy modelling. It was clear that there is not a consistent understanding of different forms of AI (and what they should or should not be used for), nor a consistent approach to training, guardrails or controls. Most utilisation within governments appears limited to general-purpose Large Language Model (LLM) platforms rather than integrated, domain-specific implementations, whereas there is rapid increased usage in private sector tools, particularly ones that purport to automate compliance checking and assessments.

While there are certainly some efficiencies being realised from innovative use of generative AL (Gen AI), interviewees raised the risk of inadvertently creating an AI "blackbox" (an unexplainable and non-defendable approach to compliance and housing). We were told of usage where Gen AI based compliance tools demonstrably were unable to reliably apply or follow rules in a consistent manner, an insight already well understood by AI experts. It

reflects a general issue of literacy on what machine learning can and cannot do, especially the difference between Gen AI systems (like ChatGPT or Copilot) versus where robust data science can provide value and solutions. In our short project we did not come across data science-led AI solutions (like high integrity computer vision analysis, mathematically sound projections, etc), finding "AI" predominantly to be assumed to mean LLMs and consumed "as a service" in the housing domain. This is concerning because LLMs do not follow or test against rules in a consistent or verifiable way.

One planner pointed out an additional capability issue of people increasingly trusting and outsourcing their thinking work to Gen AI tools, creating a risk that planners and other housing professionals start to lose the cognitive confidence, expertise and experience required to validate and invalidate the outputs from Gen AI tools, let alone to ensure good planning practices and outcomes for their communities.

AI experimentation is clearly well underway in the sector, including across all levels of government, so it is increasingly important to collate and coordinate on good practice, policies, guardrails and mechanisms to ensure AI solutions produce and support:

- verifiable outputs (ideally tested against use cases, scenarios and housing rules as code) that support real liveability (with shared/common measurement frameworks),
- apply the right form of AI to the right problem in the right way (with robust policies, governance, procurement requirements and better practice),
- always monitor for unintended impacts to remediate (through public feedback, complaints and impact analysis, etc).

*These insights on AI informed the need for coordination on AI and establishment of common standards, guardrails and guidance for AI in housing (**Solution 7: an AI for Housing sandbox**).*

"Some AI tools to improve customer experience are being tested and might have some value. [It's] frightening that some people are trying to use it to "think through" compliance issues." – REGIONAL COUNCIL PARTICIPANT

Strategic cooperation as a challenge

A key insight from the interviews was the depth of expertise, long term experience, and well evidenced policies and strategic thinking from Local Government is often missing in State/Territory or Federal Government policy deliberations and program development. This insight reinforces the need for non-DPI solutions and strategic cooperation such as cross jurisdictional policy design, common housing reports and research repositories, and regular forums for housing policy and operational folk to discuss, share and cooperate on challenges and opportunities in the space.

Below is just one example of the thoughtful, well-evidenced contributions to this project (shared here with permission from the City of Darwin).

Addressing the Northern Territory's housing crisis requires a coordinated, cross-sector and whole-of-system approach. Housing outcomes reflect the interaction of economic, infrastructure, regulatory and social factors, not simply planning settings or measured supply constraints (Pawson, Milligan & Yates 2020; Pinnegar, S., Randolph, B., & Troy, L. (2020); Louie, Mondragon & Wieland 2025).

Local government, the NT Government, the Australian Government and industry all hold essential roles, and progress depends on working collectively as aligned system partners. Although NT local governments hold limited surplus land, they remain key contributors to enabling trunk infrastructure, aligning spatial planning with community needs, reducing delivery costs and supporting long-term liveability. These contributions are most effective when integrated with shared strategies across governments and the housing sector.

The NT continues to face some of the nation's most severe housing pressures, with around three-quarters of estimated homelessness occurring in severely crowded dwellings and specialist homelessness service use sitting well above national averages (ABS 2023; AIHW 2024). Current modelling estimates unmet housing need at roughly 8,200 dwellings (UNSW City Futures / CHIA 2023), alongside social housing wait times of 8–10 years in major centres (NT Government 2025).

These pressures are most visible in public spaces, services and community safety, areas local governments manage daily but cannot resolve alone. A collaborative, whole-of-governments, cross-sector approach is essential to achieving sustainable, people-centred housing outcomes across the NT.

Extract References:

- ABS (2023). Estimating Homelessness: Census 2021. Australian Bureau of Statistics
- AIHW (2024). Specialist Homelessness Services Annual Report 2022–23 (web and PDFs):
  - https://www.aihw.gov.au/reports/homelessness-services/shs-annual-report-22-23/contents/clients-services-and-outcomes
  - https://www.aihw.gov.au/getmedia/3e8872c8-a0a5-4440-bd64-fe8af2b3be06/specialist-homelessness-services-annual-report-2022-23.pdf
- Louie, S., Mondragon, J., & Wieland, J. (2025). Supply Constraints Do Not Explain House Price and Quantity Growth Across U.S. Cities. Federal Reserve Bank of San Francisco Working Paper No. 2025-06. https://doi.org/10.24148/wp2025-06
- NT Government (2025). Public Housing Waiting List Data (as at 31 December 2025): https://nt.gov.au/property/social-housing/apply-for-housing/apply-for-public-housing/waiting-list
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- Pinnegar, S., Randolph, B., & Troy, L. (2020). Decoupling Growth from Growth-dependent Planning Paradigms: Contesting Prevailing Urban Renewal Futures in Sydney, Australia. Urban Policy and Research, 38(4), 321–337. https://doi.org/10.1080/08111146.2020.1795636.
- UNSW City Futures / CHIA (2023). Unmet Housing Need – NT (HAFF Ready in the NT) and Housing Need Dashboard: https://www.unsw.edu.au/content/dam/pdfs/ada/city-futures/NTShelter_ryanvdn.pdf and https://www.unsw.edu.au/research/city-futures/cityviz/housing-need-dashboard

Special insight on consumer, investor and market behaviours

Most interviewees argued that Australia's housing challenge begins with a cultural and financial framing problem. They observe that housing is widely treated as a financial asset rather than as essential social infrastructure, including by the public who try to maximise what they can get for their money rather than choosing the right housing at the right time in the right place. "The Australian Dream" was frequently cited as a cultural driver shaping housing demand. Interviewees observed that the aspiration for large detached homes on expansive blocks continues to influence purchasing decisions, even as household sizes shrink and infrastructure costs rise. This dynamic reinforces supply patterns that may not align with long-term sustainability or affordability. Enabling households to better understand trade-offs between dwelling type, location, infrastructure access, lifestyle and long-term costs may help nudge demand toward more sustainable and context-appropriate options.

These insights reflected a need to nudge consumer and investor behaviours upstream. This has not informed a specific DPI solution, but was of enough significance to most interviewees that it is included in the out-of-scope recommendations.

"Housing is perceived as something to build wealth, not as a human right, driving behaviours that elevate prices. Meanwhile, you can't rely on the market to provide affordable housing, companies need to make a profit." – METROPOLITAN COUNCIL PARTICIPANT

Impactful DPI Recommendations for Housing

DPI investment is most effective when deliberately designed to advance clearly articulated policy objectives, national priorities and market enablement goals. The following section outlines a range of housing outcomes and the DPI capabilities best positioned to address underlying, causal constraints affecting affordability and access.

While many initiatives could alleviate symptomatic pressures within the housing system, this report focuses specifically on systemic interventions aimed at structural drivers of the housing crisis in Australia. The proposed solutions prioritise durable, scalable reform over short-term remediation.

Below is a high-level map of twelve proposed DPI capabilities, each aligned to a distinct strategic challenge in improving housing outcomes nationally. Prioritisation reflects the anticipated capacity of each solution to address causal barriers and generate meaningful, system-wide impact.

1. **A Digital Housing Policy Twin:** A shared reference implementation of housing legislation, regulation and other rules as code to consume, automate compliance, cooperative modelling, scenario testing and to monitor policy efficacy and impact.
2. **Housing DEX:** A shared data and analytics commons for relevant data for planning and housing with a shared high value analytics layer available to all contributors.
3. **Growth and Economic Modelling Platform:** A persistent platform for Local, State/Territory and Federal Governments to do growth and economic modelling.
4. **Populations for Planning:** A supplement dataset to the Census that represents transient and missing populations for planning, and realtime population movement.
5. **BuildMe3D:** a public 3D tool for designing building plans that can validate compliance checks pre-submission.
6. **A National Liveability Standard:** defining a clear national minimum housing liveability standard (with reference implementation), measurement framework and monitoring approach to liveability of new construction..
7. **An AI Housing Sandbox:** a shared set of AI platforms/ environments to test different AI, and complement solutions with technical guardrails for housing
8. **Affordable materials for affordable housing:** novel solutions and methods like industrial 3D printing, material recycling, modular builds, cruise ships, etc.
9. **DwellingID:** a national housing register with unique identifiers for stock, providing a shared and common data spine for analysis and a history of change.
10. **Housing Knowledge and Innovation Hub:** a website to contribute case studies, reports, solutions or ideas for improving housing outcomes for reuse and visibility.
11. **Common State/Territory planning portal(s)** for submitting, managing and analysing building applications, trends and patterns of behaviour in real time.
12. **A National Infrastructure Register** including underground/overground existing and planned infrastructure for improved planning and coordination of housing.

Mapped against our three categories of systems, there is a reasonable coverage of all three problem spaces, with the outcomes and impacts identified in the table, next page.

Overview of proposed DPI solutions for housing: *each proposed solution is complemented by a LEAN canvas in Addendum 1*

Intended outcome (blue sky)	**Proposed solution**	**Likely impact (and priority)**	**Estimated effort**
A reference model of housing rules as a digital policy twin, providing a clear, shared, consistently applied and verifiable way to consume rules, validate systems against, test and model policy changes, test scenarios, monitor for policy efficacy, reduce the speed and cost of policy change.	**1. A Digital Housing Policy Twin:** A digital, shared reference implementation of housing rules as code (a policy twin) available for anyone to consume housing rules, schemes, legislation and policies as code. Would support scenario testing, ingestion by business systems, validation of correct application of rules, etc. Additional features include policy modelling and scenario testing. Additional layers like supply, labour costs, etc could be incorporated over time.	High impact: is a foundation for many systems, and would create consistency of interpretation by all policy makers and policy consumers. Housing legislative reforms underway could be supported by a test-driven approach, avoiding greater uncertainty, duplication or conflicts in the housing policy landscape. Also, the rapid uptake of Gen AI solutions requires rules-based guardrails to validate compliance and lawfulness.	Medium effort: although the policy landscape is large & unwieldy, codifying individual rulesets is not complicated and provides a means to properly expose contradictory rules. Could start with one Act or housing journey, adding more over time. AI tools can expedite coding. Scenarios/testing must be done with policy owners.
All Governments have a shared and close to real time view of housing in Australia, including visibility of current and new stock, the impact of policy changes, emerging and planned investments (including enabling, truck and social infrastructure), emergent or behavioural patterns in the marketplace and housing sector, and critical information like occupancy, population growth/impact and new or planned investments.	**2. Housing DEX**: A shared data commons and analytics layer for housing data to inform operations, policy, planning and analysis by all levels of government and the housing sector and research. The Housing DEX could extend existing digital spatial twins to a digital twin of the entire housing domain, supply chain and planned investments, with a layer of analytics tools available to all. This capability would support holistic scenario testing and policy modelling, ideally leveraging a public reference implementation of housing rules. *Candidate solutions to leverage, learn from or extend: DEX (social services data exchange), AURIN, the PlanSA Land Supply Dashboard and the Estonian X-Roads data exchange. Data catalogues like AHDAP might be extendable.*	High impact: Observability is a huge challenge for everyone, not just to see the full picture, but the real and felt issues of everyone having a different view of what is happening at any one time, Observability that is close to real time is extremely difficult at the moment, and insights produced are already out of date by the time relevant decision makers have access to them. Many data solutions do not provide benefits to LG or other data contributors, so the DEX model is critical to make this feasible and desirable. Most Local Govs don't have policy modelling or scenario testing tools, and commission analysis as needed, so this capability would be a game changer for many.	Medium effort: if the DEX model is adopted, implementation could be fairly easy once a decent pilot is run that demonstrates real value for Local, State/Territory and Federal Governments. Ease of onboarding is critical, as is a free or cheap analytics layer of tools to help Councils with operational needs. One way to make it immediately of value is to identify some high value private sector data and provide it as a service with tooling for Councils, where they currently have to procure individually. Needs to be use case driven so as to be of value and regular use to contributors.

A persistent, shared platform for testing, modelling and projecting planning for growth and development, enabling Council-led testing, scenarios and visibility of complexity and diversity to avoid unfeasible cookie cutter solutions.	**3. Growth, Feasibility & Economic Modelling Platform:** A tool for Councils and States/Territories to cooperatively model growth, etc. Would include area and Council characteristics (who provides water, sewerage, etc, economic patterns, population movements). Different types of growth could also be modelled according to differing characteristics of different areas, with Local Government profiles available for testing.	High impact: When everyone is modelling growth independently from each other, it creates issues of unfeasible, undesirable and untested growth strategies and State/Federal investments. There is enormous cost in all Councils having to get point in time growth studies, without any persistent or shared view. Relies upon some housing policies and data availability.	High effort: Growth planning can be extremely complicated in a single platform. However a few Councils with respective States/Territories would be a good test bed, and could be sustainable if Local and States/Territory Governments could contribute data, growth and infrastructure calculations, etc.
We have accurate population data for planning, including under- represented and transient communities (eg, remote Indigenous communities, FIFO workers) to better inform housing and infrastructure needs, inform policy, planning and funding models.	**4. Populations for Planning:** This includes: 1) persistent and shared access to high granularity census population data, 2) supplemental population data that represents transient populations (FIFO, tourists), and 3) under-represented or missing populations, such as remote or Indigenous. Would also better inform GST funding, as it would reflect full infrastructure utilisation, not just permanent population. A digital twin on population movements might also be considered, like deidentified phone data.	High impact: current population data is largely based on the census which has gaps (such as remote communities) and only counts a person where they are on that particular night (which does not reflect the reality of FIFO and other transient workers who require housing and infrastructure in two or more locations). Many Councils already survey under-represented populations for more accurate planning.	Medium effort: Not all Councils have the resources or capabilities to fill known gaps in census data, and data on transient workers may require creative solutions and engagement with private sector data holders. Creating a single project for Councils that collect this data to share it in one place would be useful with the upcoming census.
Anyone can easily design a new build or renovation proposal online and verify compliance for their location prior to submitting a building application. Councils receive 3D plans for applications, verify compliance and assure against vision and character of the town.	**5. BuildMe3D:** a public 3D tool for designing building plans that can validate compliance checks pre-submission. Pre-loading compliance would reduce compliance impost and cost in Councils, freeing up resources to better ensure alignment to town plans/characteristics and for planning activities like social and trunk infrastructure. *Examples: Archistar + eComply (Vic Gov)*	High impact: significant efficiencies would be achieved by "front loading" compliance. Solution would be an easy way for people to select or develop 3D models of their proposals and validate compliance of the models against relevant rules prior to submission. Would free up Council resources for better planning and alignment to vision.	Medium effort: developing a single platform for 3D modeling that can check compliance is easier than implementing 500+ times. Outputs could be downloaded or submitted directly to Councils. If Councils could author their rules, implementation could be fast.

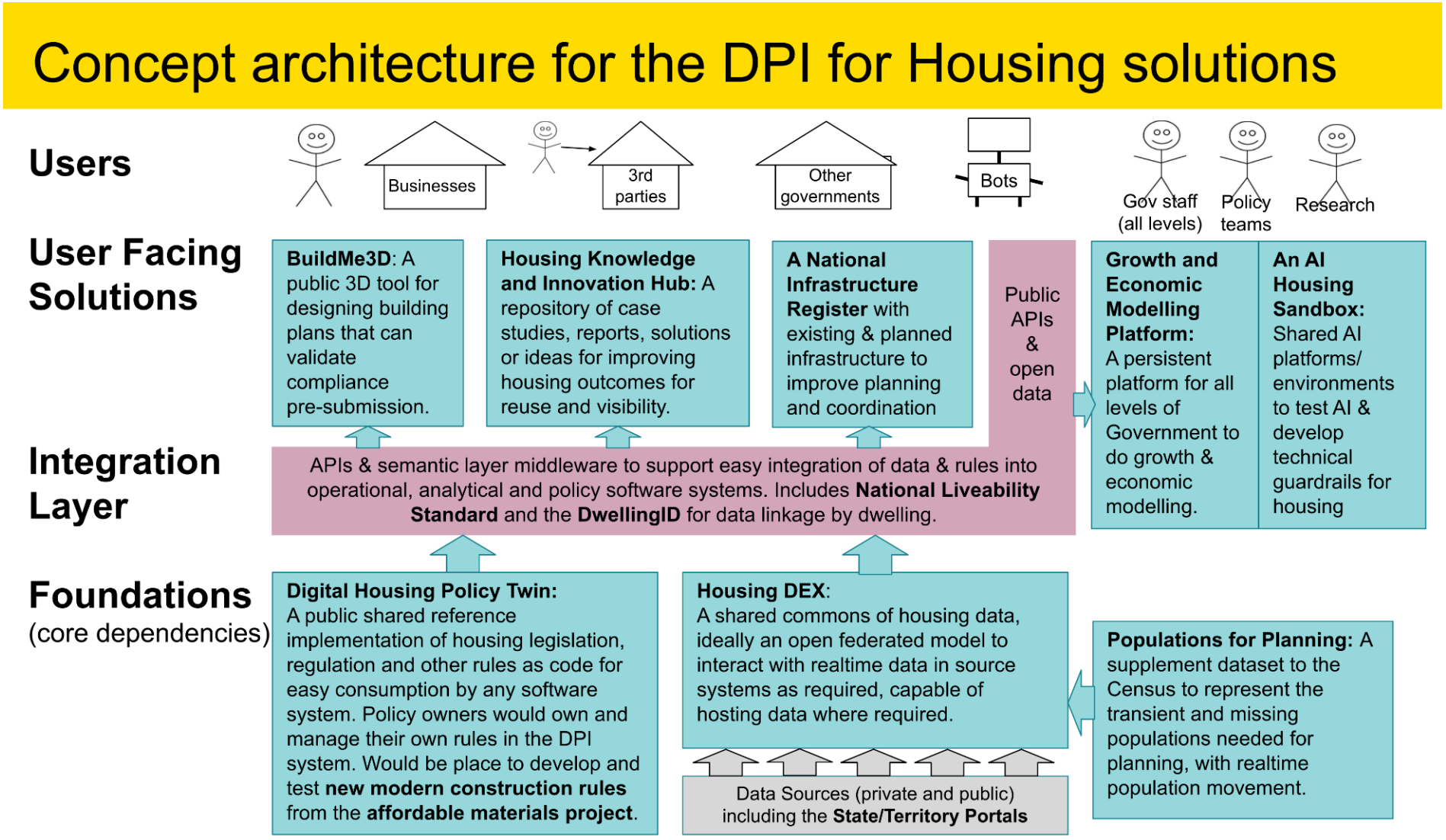
A commonly applied liveability measurement framework is used to ensure new and renovation housing applications support improved liveability, and to prioritise investments that drive liveability for all.	**6. National Liveability Standard:** defining a clear national minimum liveability standard (with reference implementation) to supplement technical compliance with quality of life characteristics. Would include a measurement framework and monitoring approach to help ensure all construction (especially rapid delivery) still contributes to a high quality of living in Australia. *Examples: City of Darwin Liveability Platform & Australian Urban Observatory.*	High impact: increasing pressure for rapid construction across the nation creates a risk of producing housing that is technically compliant, but poor for broader liveability. Some Councils have clear liveability metrics (like Darwin) but many apply liveability as a principle, creating a lack in consistent approach and actual liveability for owners/tenants.	Medium effort: Much is already done in this domain (eg, energy efficiency standards) and some Councils have defined specific liveability metrics (eg, Wellbeing Framework, Darwin's work) so a first iteration could be rapidly built and then consulted widely for relevant iteration, but gaining national agreement would take effort and time.
A common and shared view on high integrity, trustworthy and safe AI architecture for housing, using the right tool for the right task, with the right technical guardrails and impact monitoring.	**7. An AI Housing Sandbox:** a shared set of AI platforms, cloud environments and easy to access training for professionals in the housing space at all levels of government to test different types of AI, and to complement AI solutions with technical guardrails, including automated testing against rules, continuous scenario testing, impact testing and trends monitoring.	Medium impact: Councils and other levels of government are exploring AI, usually with Generative AI solutions like LLMs. It is important to fairly quickly establish what types of AI tools to use for what outcomes, and to establish a consistent and effective technical approach to AI for housing. Without cooperation, AI for housing risks being entirely shaped by private interests.	Medium effort: establishing a sandbox is quite easy, but collaborating and cooperating on developing a shared approach requires resources most Councils don't have to spare, and some resources for coordination.
The high cost of building materials (including transport to remote areas) is mitigated by novel technological advancements and modern construction methods, including temporary housing for temporary construction workforces.	**8. Affordable materials for affordable housing:** a program of work to identify, enable and reduce barriers with novel solutions and methods, for example 3D printing, modular builds, and support for enabling Councils to approve buildings that use modern construction methods.. Example: recycling building materials into new 3D building materials	Medium impact: Building affordable housing in remote and regional areas is often immediately impeded by the cost of construction materials or transport of materials, as well as complexity of approvals.	High effort: Could also be used for demountable housing for construction workers/labour force. Novel solutions and pathways to approval for modern and non traditional construction requires a coordinated project and establishment of shared standards and approaches.

All housing stock could be easily referenced by a unique identifier, enabling a common spine to link to, including property and land data, address, a history of development, ownership, vacancy, short stays, etc.	**9. DwellingID:** a national register that has unique identifiers for housing stock, providing a shared and common data spine for analysis, maintaining a history of change, for mapping and analytics and linked data such as 3D models, address data, BAs, etc.	Medium impact: A national spine would provide benefits in visibility of stock and improved data linkage, but may not provide sufficient value to warrant the cost. Could be tethered to lot and plan information, but needs further research and feasibility testing.	Unknown effort: May be as "simple" as a national housing blockchain, but may be quite challenging. Requires further research.
Commissioned reports and research on housing are searchable and easily available, and innovative ideas from any level of government, the housing sector and from the community can be shared, with lessons learned and reusable insights and methods available and easily searchable to all.	**10. Housing Knowledge and Innovation Hub:** a website that anyone can contribute a case study, report, solution or idea to for improving housing outcomes, providing a persistent and reliable knowledge base for the domain. This would also provide greater impact, productivity and value from commissioned research, through greater reuse and costs avoided from what would otherwise be duplicative efforts.	Medium impact: Interviewees at all levels of government spoke about reports, research and advisory services they have received, almost none of which were shared outside their organisations. This implies duplicative efforts, and the risk of conflicting advice or insights which can drive conflicting programs or remediations. In cases where multiple municipalities participated in the same interview, they often ended up sharing good practice or policy ideas.	Low effort: Could be a simple solution and can launch with just a few case studies and reports. Could add reports over time, and content could be crowdsourced from trusted entities being authors on the platform.
All States and Territories run a whole of State/Territory platform for submitting building applications, creating a shared and timely observability platform for patterns and behaviour change in applications, as well as a mechanism to perpetuate common standards.	**11. Consistent State/Territory planning portals** for submitting & managing building applications, providing realtime data, insights and analytics, including to Local and Federal Governments. *Example: The **SA Government Planning Portal** doesn't require a copy of applications but replaces application systems in Councils with a single State portal, providing live data for planning, policy and decision making purposes by State and SA Local Governments.*	Medium impact: States/Territories in Australia have a high mandate for planning, separate to the Commonwealth Government. Portals at that level provide the right balance of centralisation while catering for quite different policy environments across jurisdictions.	High effort: several States/Territories have already created their own portals, but only the SA Planning Portal provided the means to receive and manage building applications as a service, replacing Council platforms. Convincing all States and Territories on this approach would mean changing tack, which may be politically or financially undesirable.

All actors in the housing ecosystem have secure access to all current and planned underground and overground infrastructure and asset information while also protecting underground assets from threats.	**12. A National Infrastructure Register** including underground/overground existing and planned infrastructure for improved planning and coordination of housing. *Example: Dial Before You Dig is a national service that helps people avoid damage to underground assets, but raw data is not always available to Local Government and needs to be complemented by planned infrastructure models/data to help with timely planning towards what is already funded and being put in the ground.*	Medium impact: Local Governments across Australia have varying levels of access to the information of current and planned infrastructure, so for some this would be high value and some low value, but it would create an uplift across the whole system to improve housing and investment planning.	High effort: Would need to consider security implications and how to ensure access to this information was either done as a service (no bulk data) or through well managed secure means to protect underground assets.

Each of the proposed solutions has a LEAN canvas in **Addendum 2** which provides further considerations and implementation considerations to help inform decision making, prioritisation and further exploration.

DPI for Housing solutions concept architecture and dependency map



Local Government feedback of proposed solutions

Local Government participants were provided a draft report and survey to provide feedback on the insights and proposed solutions. LG feedback was encouraging, with 89% agreeing that it generally reflects housing challenges as they understand them; however, there were not enough respondents by the project finish to include statistically relevant findings. The survey data will be shared with HAL which will continue to gather feedback from respondents to inform future projects.

Meanwhile, survey respondents provided the following feedback on existing initiatives that might be worth considering, extending or learning from for the proposed DPI for housing solutions:

Digital Policy Twin: Digital Twins were proposed under both the Hobart and Launceston City Deals. The Hobart one has not progressed and I'm unsure of the status of Launceston's, but there is info about it here.

Growth, Feasibility & Economic Modelling Platform: Establishment of a program (likely an online portal) for monitoring demand and supply of residential land, including growth projections, is an action under the Greater Hobart Plan implementation arrangements. This is being led by the State Planning Office. Unsure of current status. Point Data - economic modelling for development trends/infill (private, need to purchase) Profile id - they have different platforms such as Economic id, Forecast id and Housing Monitor id (subscription fee) Healthy Active By Design (Heart Foundation) - has free resources, urban design and research information In SA the State Government has a range of tools including the SA Planning and Property Atlas (SAPPA) and the Land Supply

National liveability Standard: Livable Housing Design Standard under National Construction Code. Liveability standards are inherent in most strategic planning documents (although not national). Australian Urban Observatory Liveability Index.

AI Sandbox for Housing: There are a number of cities overseas doing AI sandboxes, including Dublin.

Affordable materials for affordable housing: Somewhat related, the 2025-26 Australian Government Budget includes a commitment to provide "$54 million to accelerate the uptake of modern methods of construction. The Government has also committed $120 million from the National Productivity Fund to incentivise states and territories to remove red tape preventing the uptake of modern methods of construction, which will help more homes be built faster." Also Building 4.0 CRC: looks at materials.

Housing Knowledge and Information Hub: AHURI fills some of the role of Housing knowledge and innovation Hub. Dashboard I believe Adelaide City Council has a 3D map of buildings under assessment, approved and built The State Government has an open data website: data.sa.gov.au where a range of data sets can be accessed.

Common State Planning Portals: Tasmania's PlanBuild - only partially implemented, doesn't include all councils

Some high level case studies to inform DPI for Housing

Below are a few case studies to illustrate relevant capabilities or lessons for housing DPI.

Extending digital twins from spatial, to policy, to people

Wellington Council (New Zealand) established a spatial digital twin many years ago. Over the years Wellington has expanded and evolved their digital twin capability to include a holistic and realtime digital twin of the policy, system, planning and environment. This also enables a sensory and adaptive approach to managing change, such as being able to model and respond effectively to emergencies. This extended digital twin has enabled many initiatives, including scenario planning to reflect past, present and projected futures, a digital District Plan, and a public interactive tool on environmental impacts to Wellington called Our Changing City.

Cooperation is key for better communities

Housing policy and planning engagement with the public varies wildly across jurisdictions and municipalities. Some organisations are very consultative and engaged, many are not. But you will not find many people more motivated to improve a town than the people living there. Town Teams is an interesting example of a grassroots initiative where people from different sectors and disciplines but living in the same town connect through the platform and coordinate on policy analysis, proposals, recommendations and other public advocacy to improve town planning and outcomes. Over 180 “town teams” already exist in Australia, and it seems a scalable solution for communities to connect with each other, and for Local Governments to engage with their communities.

Shared value drives shared buy-in

The Department of Social Services (DSS) funds non-government organisations to provide a range of social services across Australia. Funded entities have always been required to provide data and reporting on their outcomes. This was extremely challenging for many years due to the high variability in data capabilities and systems, leading to inconsistent and difficult to use data. For years DSS tried to encourage, cajole, incentivise or punish, with little success. Eventually, a CX/product management approach was tried that actively looked at what NGOs need, which resulted in a system which included a range of data analysis tools on top of data that NGOs could upload. This identification of value to NGOs as contributors to a data system rather than simply sources of information to extract led to a shared value approach in social service reporting, a platform called the DSS Data Exchange (DEX). Once NGOs found they got direct value in uploading data in the right format, they had a natural and sustained motivation (incentive) to upload data, with many NGOs actually uploading on a regular basis for their own planning purposes, creating greater visibility to DSS as well. The DSS DEX is a good case study in understanding the importance of creating mutual benefit from digital and data platforms. See the DEX website and webinar for more information.

Whole of system visibility that proactively informs operations

The NSW Government established a Data Analytics Centre (the DAC) to take a proactive and strategic approach to data-informed decision-making. New trends are monitored by expert data scientists and analysts to understand what is changing in the world around them, and to inform programs, change, messaging and policies. For example, during COVID, there was close to real time monitoring of public sentiment and of public data holdings, which led to early identification of emerging and unanticipated issues that could then be managed. *"We've been able to take those capabilities around customer insights and use that to really get a picture every day of how the community has been feeling around COVID, and responding to that in real time almost."* – William Murphy, Department of Customer Service.

Transparency for better regulation and enforcement (in this case, of affordability)

The Progressive Residential Affordability Development Solution (PRADS) is a register solution that records and monitors rents of registered properties when they are leased, with compliance oversight led by the relevant State or Territory Housing Registrar. Where rents exceed the agreed affordability covenant, the Registrar is notified and responsible for investigation and enforcement. This is an interesting example of improving the observability and rental transparency, which should in principle drive better enforcement of rental affordability by Housing Registrars.

The importance of co-design and public engagement

One of the authors met a woman who worked in government on social housing in the 80s. She travelled to remote Indigenous communities to understand and document their needs and expectations from government housing. When she returned with her findings, she was told her recommendations were "racist" because her findings did not support the department policy at the time of "modern European kitchens". The assumptions of the relevant department were assumed to be correct in the absence and later in the face of actual community needs, leading to the continuation of unsuitable and unwanted housing being rolled out. In Aotearoa New Zealand, the government Service Innovation Lab (now closed) ran a life journey based design project on renting a property, with a purposeful application of a Māori cultural lens, which resulted in profound insights to the housing department, shaping an entire new program and departmental approach. Another co-design example in planning is the United Nations project to engage the public in designing public spaces with Minecraft. Public engagement doesn't need to be expensive, but it does need to be easy and meaningful to support effective planning outcomes.

Technology isn't just for delivery, it is a strategic enabler

Several of the Local Government interviewees saw digital/data as something the IT Department is solely responsible for, treated as "just delivery" and disconnected to or responsible for policy outcomes. This has led to two significant problems: 1) a lack of technological insights and creativity in policy and program design inhibiting novel and test-driven solutions; and 2) a lot of delivery happening in the absence of policy expertise and either underdelivering on policy objectives, or perhaps making things worse. It is worth considering changes in strategic, structural and operations to bring delivery and policy together, and to bring technologists into the planning and policy room.

Community-led strategic planning for liveability

City of Darwin's Place and Liveability Plan 2050 sets out a clear, community-led roadmap for delivering safer streets, greener and cooler places, and more vibrant, connected neighbourhoods through integrated, place-based planning and infill-ready, community-centred growth. The plan is supported by a public Liveability Platform that links projects, data and community engagement to on-the-ground outcomes, providing a transparent line-of-sight between local priorities and delivery (City of Darwin 2024). This aligns strongly with the Australian Government's National Urban Policy (NUP), particularly its emphasis on liveability, equity, productivity, sustainability and resilience, positioning the City of Darwin as credible and ready in delivering national objectives through locally grounded projects (DITRDCA 2024d; DITRDCA 2024e; NUP 2024).

Addenda

Addendum 1: Additional (out of scope) recommendations to consider

Throughout this project, recommendations were made or identified unrelated to DPI/digital/data and outside of the project scope, but which warrant further consideration and exploration. We have included this recommendations below in order from the highest to lowest in driving impact for housing access and affordability:

- Significant federal investment is **driving a range of behaviours** in different levels of government, the housing sector, buyers/investors, and the whole economy. It may be worth properly analysing and starting to use the same funding controls to nudge and influence behaviours and mitigate any issues. For instance, Federal funding for meeting building targets might be further tethered to access to realtime applications data from State Planning Portals which will result in independent national reporting and analysis.
- An **annual cross government policy forum** to explore, test ideas and share insights about emerging challenges, the impact of policy changes and as a regular operational mechanism to better understand and collaborate with each other. There are formal cross jurisdictional fora, but no informal mechanisms to share/test ideas and knowledge.
- Where consistency is critical for national housing outcomes, there should be consideration and consultation about **what should be mandatory**. Mandatory settings, solutions or policies should not be simply announced, but should be developed with Local Government engagement and testing, and only what is proven to work could be made mandatory.
- Long term planning requires **politically independent coordination**, so when bodies like the Greater Western Planning Coordination function was shut down with change in government, it does not just remove a critical enabler for coordinated planning, it reduces business confidence in investment and community confidence in program integrity.
- There needs to be a **shift in the housing sector workforce**, to have planners, policy and compliance skills in the same team and increasingly in the same people to bring a more holistic and productive approach. Wellington Council have already started this kind of workforce planning.
- On the challenge of stalled gentrification in some areas, it was suggested increasing the financial **threshold for owner-builder projects** and the limit on which a licenced builder is required would dramatically increase gentrification. These thresholds have not moved in 15 years, but were changed temporarily in COVID (homeowner incentive) which flooded the market and created a marked increase in small-medium construction, providing evidence for the proposal.
- All levels of government should ensure **community involvement in planning** to help shape and reflect the nature and needs of each community, especially in creating Masterplans and in designing social housing. This would help ensure the design of housing and areas reflects the needs and character of the people living there, and would help the

community feel a sense of ownership and pride in their town/city, which contributes to behaviour and social cohesion.

- All major government infrastructure projects (over a reasonable threshold) should require a **labour, materials and labour housing strategy**, which considers and actively mitigates the downward pressure on a tight labour force and supply chains. Housing for workers is also critical to plan for so that new developments don't push up housing costs while new construction is underway. This needs a national view, not just a local view, because planning geared towards assuring the success of a project without national context leads to cannibalistic programs that put pressure on an already tight labour and materials market. For example, the excellent resourcing strategy work for the Olympics in Brisbane is being felt across the country, because workers move to Brisbane for the higher paid work and are unavailable to other areas.
- A **national public dialogue** needs to be started about housing, encouraging people to consider the ***right housing at the right time in the right place***, with a purposeful move away from the traditional concept of "The Australian Dream" where you buy a forever home. This would reduce the cultural pressure to buy and stay in a forever home. It was observed by interviewees that different Councils engage differently with their communities, creating an inconsistent role of the public in shaping their own communities.
- Beyond dialogue, there needs to be **specific coordinated efforts to nudge behaviours** of consumer and investor behaviours, otherwise current consumer and investor behaviours will continue to be a cost pressure. It might be transparency efforts for investors (like rent affordability, liveability), or consumer behaviour (like understanding the full suite of housing options rather than most people just defaulting to a large house on a large block.
- **Transparency in housing systems** (status of applications) helps the end user/customer to know where things stand, especially when they are engaging through an agent.
- **Transient workers** create challenges for planning, because they do not show up in census data (which informs policy, planning and investment, and therefore require a clear policy position at State/Territory level, to better manage housing, funding and planning challenges for transient workers. There is no reinvestment from GST in infrastructure. Queensland Government social impact policy might be a repeatable model. Key worker model in Darwin works quite well.
- All Local Governments should have a **clear future state vision** and the **characteristics of their city/region** articulated in their strategic plans, as something to guide and align to for new development. This would address the current issue of perfectly compliant applications being passed which do not necessarily contribute to the character, future aspiration, social cohesion or liveability of the area as a whole.
- A national agreement to prioritise **future-proofing as an agreed principle** for development and planning to help ensure future opportunities to transition space into housing. For example, making carparks high enough to transition into accommodation in

future, or public infrastructure to have IoT sensors to monitor for liveability, emerging health trends, emergency response modelling, etc.

- Ensure all policy, planning schemes, legislative and other strategic work involves **broad perspectives and multi-disciplinary teams**, including technologists who can bring novel ideas of what is possible into the process, and system/service designers who can bring user-centric and test-driven methods into the room.
- Several Councils said their State/Territory planning schemes were “prose”, and difficult to implement consistently. Suggested a nationally consistent **approach to principles and prescription in policy** to ensure all policy in this space uses prescriptive rules for what should be consistent, and judgement rules (principles based) where inconsistency is ok.
- Consider **training programs** that embed modern design, digital, data and multi-disciplinary team practices into the planning sector.
- The "**Housing Completion**" metric should not include knockdown rebuilds or renovations, as they do not add net new stock. Perhaps **monitoring national occupancy and short-stay statistics** could help incentivise better use of existing stock (to complement new builds) and to address housing affordability, not just availability.
- Consider a **higher threshold of state-built social housing**. Several attendees mentioned that the majority of social housing used to be provided by gov, which was heavily reduced from the 1950s to now be ~2%. A lot of current social housing requirements are done with sunset clauses, creating issues of diminishing or neutral net growth over time.
- Consider a national review of **trunk infrastructure (including water and sewer)** to identify key challenges, opportunities and emerging inequities for federal investment that aligns to national objectives. The different governance models in different areas for water and sewerage creates inconsistent outcomes. The large expansion of water and sewer in the 1990s (the red and blue schemes) might be a model to explore.
- It might be worth considering **community landtrusts**, where the trustees might be Local Government, a community housing provider, residents in that area who have a say over how the land is used. Buying and selling these houses is just buying and selling the improvements, not the land. Or long term lease like in the ACT which allows for ongoing long term policy and behavioural levers to be used.
- There is a **national shortage of planners, builders and engineers**. The whole skills requirement needs to be considered in the workforce planning, not just planners.
- Some Councils cannot attract private development (nor financial support for private developers) so the **Council becomes the primary development entity**, which is not supported by State or Federal Government programs which target private developers.

- **Data on housing completions** has recently (weeks) stopped being published, creating a barrier to Councils knowing how they are performing comparatively. Completions data should be available publicly (State/Federal Government).
- There might be value in identifying and lobbying for a **minimum calculation of planning and support staff for Councils**, and a national strategy to surge and supplement.
- **Proforma solutions** for things like DCPs might create some consistency and efficiencies. State/Fed Government might want to consider going beyond controls on Local Government, and start identifying support mechanisms.
- **Sunset clauses being upheld** (rather than rolled over too easily) on DAs might help to compel construction to start.
- Councils are **losing millions every year in rates of aged care developments** which are not rated like individual abodes, an area often underserved (treated as single water/waste in costing and construction models).
- **Procurement** is a real challenge for many Councils, creating barriers to digitisation, modernisation and innovation. Shared or group procurement can overcome the barriers of individual Councils.
- **Key worker housing** is a critical area of shortage. Some suggestions from Local Government included: Provide direct funding to hospitals to develop key worker on-site housing; Identify Federal land holdings that can be developed for affordable housing in partnership with councils e.g Defence land; Expand the Commonwealth Rent Assistance scheme; Make it very easy for councils to access HAFF funding e.g grant funding to prepare EoI and background feasibility. Provide interested councils direct support, training and guidance; Support States to deliver and redevelop social housing estates; Tax incentives for key worker housing; and Provide direct funding for preparation of council housing policies

Addendum 2: DPI Proposal LEAN Canvases

Below are LEAN canvases for each of the proposed DPI for housing solutions:

1. **A Digital Housing Policy Twin:** A shared reference implementation of housing rules, schemes, legislation and policies as code
2. **The Housing DEX:** A Shared data commons, with free (or heavily subsidized) analytics layer for LG, State/Territory & Fed Govs
3. **Growth & Economic Modelling Platform:** easy, persistent use by all Govs with scenario testing & municipality personas
4. **Populations for Planning:** A supplement dataset to the Census that represents transient or missing populations
5. **BuildMe3D:** A Public 3D Planning Tool for anyone to design and develop their proposals, including pre-approved plan templates.
6. **A National Liveability Standard:** a national housing liveability standard, measurement framework and monitoring
7. **An AI Housing Sandbox:** AI platforms and cloud environments to test different types of AI for housing with technical guardrails
8. **Affordable materials for affordable housing:** novel solutions like industrial 3D printing, material recycling, modular builds, etc
9. **DwellingID:** a national housing register with unique identifiers for stock, providing a data spine for analysis and housing history
10. **Housing Knowledge Hub:** a persistent, open knowledge base for anyone to contribute case studies, reports, solutions or ideas
11. **Common State/Territory planning portal(s)** for submitting & managing building applications (aggregated into Housing DEX)
12. **A National Infrastructure Register** (including underground/overground assets) for improved planning and coordination.

1. A Digital Housing Policy Twin : A shared reference implementation of housing rules, schemes, legislation and policies as code

Problem

- Every Council has to individually interpret and implement a complex policy landscape into their business systems, leading to inconsistent implementation.
- Policy and delivery across jurisdictions have different understandings of the policy landscape, leading to policy changes that are conflicting, duplicative or impractical.
- It is challenging to model or understand the impact of policy change across the domain.

Solution

- A single national rules as code platform, that includes place based (jurisdictional) policies as a machine readable reference implementation & modeling/monitoring tools.
- Dropdown options to select location, to select relevant codes, schemes & policies.
- Scenario definition & testing.
- Needs to provide rules as a utility/service, reusable by many other systems for myriad use cases for rules.

Unique Value Proposition

- A single interpretation would avoid inconsistent implementation and would lessen risk of unpredictability.
- Provides ability to test policy changes against whole system.
- Provides foundation for monitoring impact of change.
- Provides tool for policy makers to adopt a test-driven approach to drafting new rules to balance consistency (prescriptive rules) with flexibility (principles rules).

Customer Segments

- Councils
- Downstream applications (such as Archistar) could consume the rules rather than having to own the risk of maintain an interpretation
- Policy makers and drafters
- Developers
- Construction/building sector
- Researchers
- General public

Existing Alternatives

None - some policies are available in some forms, but there is no shared interpretation of the policy environment. Policy implementation is rarely shared. Councils are starting to use AI (LLMs) on policies, further exacerbating implementation and inconsistent application of rules.

Key Metrics

Time and cost savings for applicants and Councils. Reduction in speed and cost to develop and implement new rules. Speed and costs avoided by early detection of conflicts or duplication.

Dependencies

None, but given this platform would be the backbone for many other systems, open source solutions should be preferenced, so as to avoid vendor lockin or future costs ransom. Is a dependency for downstream apps that use rules (including BuildMe).

Considerations

Provides a pre-condition required for mass automation as recommended in the MAV report. Doesn't need 100% coverage to be useful, just rules from a single housing journey in a single location to start.

Cost Structure

Ideally this would be provided as a national service, and could be funded through savings in the first instance, and then as a subscription for high value services.

Likely Partners

A first partnership with a State or Territory Government, Federal Government and one or a few Councils would be a good pilot. Mass delivery might be well coordinated with collective LG bodies such as ALGA, with support from ALGIM and State/Territory based groups, eg LGITSA & MAV.

2. The Housing DEX: A shared data commons, with free (or heavily subsidized) analytics layer for LG, State/Territory & Fed Govs

Problem

- Every Council, State/Territory and Federal Government runs their own data infrastructure.
- Many smaller Councils can't afford analytics tools to use and draw insights from their data.
- The DEX project (Department of Social Services) provides a model that benefits all participants, by providing a free analytics layer on shared data.

Solution

- A platform where multiple data sources are able to be uploaded and accessed through a layer of analytics tools (spatial, dashboards, analysis, stats), providing both a data commons and an analytics tools to all.
- Should include bulk procurement of useful private sector data such as occupancy, utilities, population data, etc.

Unique Value Proposition

- Many Local Governments don't have high data or analytics capabilities or capacity. Providing analytics tooling is an incentive to upload data.
- Many LGs can't afford or easily procure non gov data, so free or subsidised access as a service would be beneficial.
- A shared view of housing data helps to share insights, see patterns and for all levels of government to work from the same housing intelligence.

Customer Segments

- Councils
- Policy makers and drafters at all levels in government
- Researchers
- The public (from anonymised data or public dashboards)
- The market could benefit from some public reporting with careful consideration

Candidates to Consider

- DEX is a social services tool, but provides a blueprint for mutual and shared value from shared analytics capabilities
- *AURIN* provides shared spatial analytics and could be extended functionally. *and the PlanSA Land Supply Dashboard.*

Key Metrics

- Savings from shared tooling, shared data procurement
- Coverage (# users, % of Fed, States/Territory & LG actors)
- Policy changes from insights

Dependencies

There will always be more data, but for this to be successful it requires enthusiastic product and community management of all levels of gov, and an easy and high value experience for Local Government participants.

Considerations

Could also include anonymised front line/complaints data, permit extensions, migration data, data/insights/trends from telcos, private sector & tech companies, search trends from real estate & short stay websites, social media sentiment.

Cost Structure

Ideally this would be provided as a national service, and could be funded through savings in the first instance, and then as a subscription for high value services.

Core data could be free, and users could pay for additional data such as private sector add ons or additional features as a service.

Likely Partners

Federal Government
State/Territory Governments
Local Government bodies and pilot Councils
AURIN
Tech/Service Design companies
Development companies
End users

3. Growth & Economic Modelling Platform for easy, persistent use by all Govs with scenario testing & municipality personas.

Problem

- Most Councils & Govs have to constantly procure modelling services. Having a persistent capability would help Councils leverage modelling in planning day to day, and would support shared modelling exercises.
- A shared modelling capability would help ensure a shared view, where assumptions and ideas can be tested broadly.

Solution

- A shared platform for all levels of government to conduct growth & economic modelling.
- Users could be able to save and share analyses and models with each other.
- Should extend to model labour costs & housing supply chain.

Unique Value Proposition

- Provides modelling as a service to support capability uplift and common approaches to modelling used in planning nationwide.
- Helps avoid conflicting or contradictory modelling across jurisdictions.
- Should save an extraordinary amount of money currently spent on outsourced modelling.

Customer Segments

- Local, State/Territory and Federal Governments
- The building and investment sector (to understand and engage with growth areas effectively)

Existing Alternatives

Private services currently provide most growth and economic modelling to Local Government. Also the UNSW HAL What If tool provides some of this capability.

Key Metrics

- Savings and costs avoided
- % LGs using the platform
- # models shared

Dependencies

Depends on data and digital housing policy twin.

Considerations

Although it could be argued establishing this capability as DPI may impact some private sector services, it could also be argued that modelling is a core government capability.

Cost Structure

Could be funded by subscription, through cross jurisdictional fora, federal investment, from cross jurisdictional pooling.

Likely Partners

Working with existing specialists in this field to build modelling as DPI, available as a service. Would likely benefit from heavy involvement from LG associations, especially those with digital/technology/data responsibilities.

4. Populations for Planning: A supplement dataset to the Census that represents transient or missing populations for planning

Problem

- Population data and projections are generally based on census data which doesn't have critical populations for planning like transient groups (eg. FIFOs & tourists) and under-represented groups (eg. remote Indigenous communities), misrepresenting infrastructure and other need for effective planning
- Where supplement data is collected, it isn't available to the broader system

Solution

- A program and platform (might might be the Housing DEX) to strategically identify gaps, collect and share data on transitory & under-represented populations for shared usage.
- Would be useful to inform infrastructure planning and budget calculations.
- Could be extended to realtime population movement data, such as anonymised cellphone movements.

Unique Value Proposition

- No one collects or shares this data at a national level, leaving Councils to either do it themselves, or buy expensive services and data sources which usually need supplementing anyway.
- A more complete view of populations for planning would provide a more realistic picture of growth and infrastructure which is not otherwise limited to permanent populations.

Customer Segments

- Councils
- Policy makers and drafters at all levels of government
- Researchers
- State/Territory/Fed
- Council for the Australian Federation (CAF)

Existing Alternatives

Some entities collect or survey for transient or under-represented populations now, and could be part of an early pilot program.

Key Metrics

- Time and cost savings from sharing supplemental population data and systems
- % coverage

Dependencies

Willing Council participants and reasonably granular population data and/or data services from ABS.

Considerations

A small number of companies currently serve this space and could be good partners in trying to build nationally scalable solutions. The idea shouldn't be threatening as there will always be a need for independent services and systems.

Cost Structure

Ideally this would be provided as a national service, and could be funded through savings in the first instance, and then as an affordable or subsidised subscription perhaps with add-on high value services.

Likely Partners

Councils, ALGA, ALGIM, ABS, companies in this space. Would likely benefit from heavy involvement from LG associations, especially those with digital/technology/data responsibilities.

5. BuildMe3D: A 3D public planning tool for anyone to design or choose 3D plans and pre-verify compliance for their location

Problem

- Most people seeking building approvals do not have easy access to 3D tools, resulting in non-3D applications that are labour intensive to assess and verify compliance to rules.
- A lack of pre-approved building templates lead to unnecessary complexity.
- Verifying compliance after submitting an application is risky and time consuming.

Solution

- A public platform to design compliant 3D building submissions.
- Dropdown options to select location, to apply relevant codes, schemes & policies.
- Ease of compliance checking and submitting building applications in one place, with 3D models for automatic verification of compliance.

Unique Value Proposition

- Would save significant time and money for Councils and the community.
- Reduced stress/ complexity by pre-loading compliance.
- Easier to test alignment to Council vision/character.
- Greater investor confidence
- A single tool also improves observability of behaviour.

Customer Segments

- General public.
- Councils could access backend and would be sent building applications directly or into their systems via API.
- High end developers already have tools, but may choose to use it if highly convenient and API-enabled)

Existing Alternatives

None - only high end developers have the tools to contribute 3D models. The community has to pay for expensive manual services to secure building approvals, or do it themselves. Tools like Archistar provide 3D and AI enabled support to assess site viability.

Key Metrics

Time and cost savings for applicants.
Cost savings by not needing to run 500 systems across Australia.
Costs avoided with data in one place.
Speed and costs avoided by early detection of trends or issues.

Dependencies

- Depends on Rules as Code (not an LLM) to ensure consistent interpretation & implementation of rules.
- 3D modelling platform that sca
  With large numbers of users, Ideally open source.

Considerations

By making compliance largely automated and assured pre-application, it would free up planning resources to consider vision, character and broader planning ramifications rather than so much time being spent on rules-based compliance.

Cost Structure

Ideally this would be provided as a service, with initial development and pilot sites funded by Federal expenditure. It would need to be developed in close collaboration with Councils with strong service design and end user research to make it as intuitive and automated as possible, and able to be leveraged directly or as an integrated service by both Councils and end users. A user pays model may be sustainable if it provides sufficient value, benefits and ease of use to users and/or Councils, but this and other sustainable funding models require testing with users and Councils.

Likely Partners

Federal Government
State/Territory Governments
Local Government bodies and pilot Councils
Tech/Service Design companies
Development companies
End users including general public and builders
Requires strong cross-disciplinary teams, with product mgmt that combines design, IT, policy and planning expertise.

6. A National Liveability Standard: a national housing liveability standard, measurement framework and monitoring

Problem

- Most “liveability” standards focus on a narrow scope of liveability, such as mobility/accessibility or energy efficiency. What does liveability mean holistically, that informs a high quality of living (health, community, safety, etc)?
- The rapid delivery of new housing needs something to balance against pure compliance, to ensure new housing is both compliant and enabling healthy, happy, futureproof communities.

Solution

- A national liveability standard, co-designed with community, to achieve a minimum viable standard of liveability, especially for new housing.
- Should inform investments, prioritisation frameworks, and perhaps a part of application considerations.
- Might include indicators about access to health, education, public transport, safety, sports, etc.

Unique Value Proposition

- Normalising a liveability standard defined from the perspective of people living in housing would help to refocus efforts to ensure sustainable, healthy and happy communities that support greater social and community cohesion.

Customer Segments

- Communities
- Councils
- Policy makers and drafters
- Developers
- Researchers

Existing Alternatives

Could build upon efforts such as the City of Darwin Liveability and the Australian Urban Observatory

Key Metrics

Houses with high liveability score
State/Territory Govs adoption

Dependencies

Cross jurisdictional coordination.

Considerations

Gaining national agreement would be challenging, but if the work was grounded in public perspectives, it should be defendable.

Cost Structure

May require a little funding to develop, but ongoing funding shouldn’t be required.

Likely Partners

Would likely benefit from heavy involvement from LG associations, especially those with digital/technology/data responsibilities.

7. AI Housing Sandbox: AI platforms and cloud environments to test different types of AI for housing with technical guardrails

Problem

- AI usage, lessons, standards, guardrails and guidance across Local Government is not shared or commons, creating increasingly varied AI usage,
- What sort of AI to use for what purpose is not clear, nor are the limitations of LLMs and Gen AI.

Solution

- A shared sandbox that tackles tricky and common LG and housing challenges, sharing the results for all to learn from and reuse.
- Provides a mechanism for multi LG cooperation on AI.

Unique Value Proposition

- There are many AI experiments happening already, with little visibility. This solution would yield a greater return on AI investment by improving reuse and reusability of AI solutions, guardrails, guidance and data/code.

Customer Segments

- Local Governments
- Housing sector

Existing Alternatives

Several LG organisations, particularly State-based ones are already looking at this. Would provide a way to share and scale nationally.

Key Metrics

# AI solutions/code/data reused
$ saved through reuse
# LGs adopting common guardrails
# LGs adopted AI policy/guidance

Dependencies

Requires access to AI solution and policy/guidance experts.

Considerations

This space is moving extremely quickly, so to keep pace there would need to be continuous funding for at least a few years.

Cost Structure

Shared resources, secondments and partnerships could likely carry most of the resourcing of this project.

Likely Partners

The National AI Centre and various research, advisory and technology AI bodies in Australia and the region. International LG organisations that are working heavily with AI and the housing sector itself. Would likely benefit from heavy involvement from LG associations, especially those with digital/technology/data responsibilities.

8. Affordable materials for affordable housing: novel solutions for remote/regional construction of affordable housing

Problem
- Affordable housing is often constrained by access to affordable materials, and by the ability for Councils to approve modern construction projects with traditional compliance.

Solution
- A program of work to identify and enable novel solutions for affordable materials, particularly leveraging new and novel technologies and construction methods.
- The program would also establish nationally relevant approval approaches for modern and novel construction, particularly for temporary housing.

Unique Value Proposition
- Would help address a key challenge for affordable housing in remote and regional areas, and would uplift and enable modernisation of the whole sector by clearing the path for novel and modern construction methods.

Customer Segments
- Remote/rural Councils
- State/Territory Govs
- Federal Gov
- Prefab/modular
- 3D printing sector
- Construction industry

The national pre-fab organisation (prefabAUS) would be helpful to liaise with as they have struggled to work across the diversity of each State/Territory and Council.

Existing Alternatives
Several organisations work in this space, so coordinating with them will be important.

Key Metrics
# new dwellings with modern construction methods
$ savings in construction
# affordable houses enabled

Dependencies
National coordination.

Considerations
In many Councils there is no approval process for non-traditional housing such as modular or 3D printed housing. This requires a national policy solution.

Cost Structure
This won't be of interest to all LGs, so identifying the ones most interested would be critical to make a meaningful start.

Likely Partners
Would likely benefit from heavy involvement from LG associations, especially those with digital/technology/data responsibilities.

9. DwellingID: a national housing register with unique identifiers for stock, providing a data spine for analysis and housing history

Problem
- There is no unique identifier of all individual dwellings in Australia, creating a challenge for status and history of housing.

Solution
- A single national register that allocates a unique identifier to all dwellings, providing a “spine” for easier data linkage.

Unique Value Proposition
- Would create greater visibility of stock and how dwellings correspond (or not) to addresses, buildings, lots, etc.

Customer Segments
- Governments (all levels)
- Researchers
- Housing sector

Existing Alternatives
None

Key Metrics
Accuracy of housing stock

Dependencies
Accurate data

Considerations
The value was contested even amongst interviewees from this project, so the value proposition requires further analysis to determine desirability.

Cost Structure
Could be a single national solution provided as a service fairly cheaply.

Likely Partners
Would likely benefit from heavy involvement from LG associations, especially those with digital/technology/data responsibilities.

10. Housing Knowledge Hub: persistent, open knowledge base for anyone to contribute case studies, reports, solutions or ideas

Problem
- Reports, statistics and code projects are commissioned regularly, with very little sharing. This leads to duplicative efforts, little reuse and people not benefiting from the lessons and learnings of each other.

Solution
- A knowledge hub or commons for sharing anything related to housing.
- May require login capability and grouping for ease of sharing 1:1 or to specific groups (gov to gov, etc).

Unique Value Proposition
- Ease of sharing with colleagues and partners in the space.

Customer Segments
- All levels of government

Existing Alternatives
Like an APO repository but for sharing any materials, from reports, to code, to data, statistics, models, etc.

Key Metrics
users
resources shared
reuses and estimate $ costs saved from reuse

Dependencies
Would require at least a few organisations to want to share with each other.

Considerations
The user experience needs to be simple, easy and intuitive. If the solution requires any significant training, it will fail. This requires a strong service design approach to the design and delivery of the solution.

Cost Structure
A repository isn't particularly expensive, so best funded as a single project in an organisation willing and wanting to provide such a capability.

Likely Partners
Could be provided as a service from the peak Local Government organisation, or as a Federal Government service under the auspice of the Federal Housing program, or by a research institution (so long as it was funded for a long period with transition strategy to a permanent funded home).

11. Common State/Territory planning portal(s): for submitting & managing building applications (aggregated into Housing DEX)

Problem

- Every State/Territory is doing their own planning portal, with a range of different models. Some require a copy of building applications, some replicate Council systems, some replace Council systems. Each has pros and cons, but the inconsistency is making it harder to see the national picture. LGs are getting quite different experiences from different portals, likely affecting different housing outcomes.

Solution

- The South Australian and NSW Government Planning Portals provide the front door for people to submit applications, so have realtime data, a replicable solution.
- LGs should have access to their data, reporting and APIs.
- Could be extended to provide State/Territory housing data.
- Federal Government could require State/Territory portal data in the Housing DEX.

Unique Value Proposition

- A single national portal or consistent State/Territory planning portals would both be better than trying to interact with 500+ systems.
- If the portal replaces Council systems (such as in SA) then it should deliver efficiencies as well as more consistent practice and planning.

Customer Segments

- All levels of Government
- Investors and housing sector
- Provides visibility on applications to end users (reducing stress, effort and time)

Existing Alternatives

SA and NSW Planning Portals appear to deliver value, with different lessons from each.

Key Metrics

$ costs avoided through consolidation of the capability from 500+ to 8 or 1.
# government users
% applications
# non-gov users

Dependencies

Requires agreement on a common or single approach.

Considerations

With each State/Territory taking their own unique approach, there is a risk that Local and Federal Governments might get worse insights (locally and nationally).

Cost Structure

Should be informed by what is working well from existing portal programs.

Likely Partners

LG peak organisations, all State/Territories who already have or are building portals, engagement with end users on what is working well.

12. A National Infrastructure Register: (including underground/overground assets) for improved planning and coordination

Problem

- Local Government staff often have difficulty accessing current and planned infrastructure information, making planning a challenge, especially where trunk infrastructure is needed.
- Modelling new developments requires precise and up to date spatial infrastructure data.
- It is difficult to stage and schedule infrastructure construction (esp labour and materials) without visibility of projects across the nation.

Solution

- A national register of infrastructure that includes underground and overground assets, as well as planned infrastructure construction, available both as raw and spatial data to support analysis and modeling.
- Needs to be available as public infrastructure for easy and broad reuse.

Unique Value Proposition

- Would be a valuable resource for planning, and would support investor and builder confidence in commencing construction.

Customer Segments

- All levels of government
- Investors
- Housing construction
- The public

Existing Alternatives

Dial Before You Dig has some of the source information.

Key Metrics

users
savings from not having to use alternative systems/data
savings from better staging

Dependencies

Would need access to data from Local Government, private utilities and others.

Considerations

Dial Before You Dig is a phone service, but doesn't provide data as a service and doesn't include approved but not yet implemented infrastructure.

Cost Structure

Needs consideration, and depends on the usage model. May replace a Council function providing an opportunity to be funded from savings, but may work as a subscription model.

Likely Partners

Dial Before You Dig might be a good partner or provider to this solution, but Local Government will be a critical partner.

Addendum 3: Additional Resources

General Resources:

- Homelessness user journey map https://loganzero.org.au/wp-content/uploads/2024/01/Client-Journey-Map.pdf
- DITRDCA (2024a). Housing Support Program – Community Enabling Infrastructure Stream:Guidelines. Department of Infrastructure, Transport, Regional Development, Communications and the Arts
- DITRDCA (2024b). Housing Support Program – Community Enabling Infrastructure Stream: Funding Outcomes (NT & National). Department of Infrastructure, Transport, Regional Development, Communications & the Arts:
- DITRDCA (2024c). Urban Precincts and Partnerships Program – Program Overview & Funded Projects. Dept of Infrastructure, Transport, Regional Development, Communications & the Arts
- DITRDCA (2024d). Thriving Suburbs Program – Program Guidelines (revised 26 August 2024)
- DITRDCA (2024e). Thriving Suburbs Program – Funded Projects (Dec 2024)
- DITRDCA (2025b). Urban Precincts and Partnerships Program – Announced Projects
- DITRDCA (2025c). Regional Precincts and Partnerships Program – Announced Projects (including NT; August 2025 list)
- Housing Australia (2024–26). National Housing Infrastructure Facility (NHIF) – program pages:
    - Critical Infrastructure
    - Crisis & Transitional Housing
- Infrastructure Australia (2021). 2021 Australian Infrastructure Plan
- Infrastructure Australia (2023). Infrastructure Market Capacity Report (December 2023)
- Medlin, L., Eacott, S., Gilbert, C., MacDonald, K., & Pettit, C. J. (2024). Housing the teacher workforce: A scoping review. Education Sciences, 14(5), 537.
- National Urban Policy (2024). National Urban Policy: A Vision for the Sustainable Growth of Our Cities and Suburbs: https://www.infrastructure.gov.au/department/media/publications/national-urban-policy and https://www.infrastructure.gov.au/sites/default/files/documents/national-urban-policy.pdf
- NHFIC (2024). State of the Housing System 2024. National Housing Finance and Investment Corporation: https://nhsac.gov.au/reports-and-submissions/state-housing-system-2024 and https://nhsac.gov.au/sites/nhsac.gov.au/files/2024-05/state-of-the-housing-system-2024.pdf
- Parliament of Australia (2025). Select Committee on Productivity in Australia – Terms of Reference and Inquiry Overview. Senate Standing Committees: https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Productivity_in_Australia/ProductivityinAustralia
- Planning Act 1999 (NT). Current Consolidated Act: https://legislation.nt.gov.au/Legislation/PLANNING-ACT-1999
- Planning Institute of Australia (PIA) (2025). Federal Senate to consider objectives for a National Settlement Strategy. Planning Institute of Australia advocacy update (November 2025): https://www.planning.org.au/pia/news-resources/articles/latest-updates/NATIONAL/Federal_Senate_Into_National_Settlement.aspx
- PRADS https://housingallaustralians.org.au/what-we-do/prads/
- Productivity Commission (2024). Housing and Construction Productivity (research and policy commentary): https://www.pc.gov.au/research
- Queensland Government (2023). ShapingSEQ 2023 – Impact Analysis Statement and South East Queensland Infrastructure Supplement: https://www.statedevelopment.qld.gov.au/__data/assets/pdf_file/0031/86728/shapingseq-2023-and-south-east-queensland-infrastructure-supplement.pdf and https://www.statedevelopment.qld.gov.au/infrastructure/infrastructure-planning/regional-infrastructure-plans/south-east-queensland

- Salvation Army (2025). Homelessness Statistics (state rates using AIHW data): https://www.salvationarmy.org.au/need-help/homelessness-support-services/homelessness-week/homelessness-statistics/
- Treasury (2024a). Future Made in Australia – National Interest Framework: https://treasury.gov.au/publication/p2024-526942 and https://treasury.gov.au/sites/default/files/2024-05/p2024-526942-fmia-nif.pdf
- Treasury (2024b). National Planning Reform Blueprint – Progress Summary (March 2024): https://beta.treasury.gov.au/key-activities/publications/p2024-560520-summary

Northern Territory:

- City of Darwin (2024). Place and Liveability Plan 2050 (Liveability Platform): https://smart.darwin.nt.gov.au/pages/darwin-liveability-platform/
- Environmental Defenders Office (2022). Planning and Development Laws in the NT (factsheet): https://www.edo.org.au/wp-content/uploads/2022/05/220429-Planning-and-development-laws-in-the-NT.pdf
- LGANT (2022). Local Government 2030 – A Strategy for a Strong, Responsive, Well-Governed Local Government Sector. Local Government Association of the Northern Territory: https://lgant.asn.au/wp-content/uploads/2023/08/LG2030-Strategy-Final-2022-Ver-2.pdf
- Local Government Act 2019 (NT). Current Consolidated Act: https://legislation.nt.gov.au/Legislation/LOCAL-GOVERNMENT-ACT-2019
- NT Government (n.d.). How Planning Works in the NT: https://nt.gov.au/property/land-planning-and-development/our-planning-system/how-planning-works-in-the-nt

South Australia:

- South Australian Property and Planning Atlas - SAPPA the South Australian Property and Planning Atlas
- Greater Adelaide Regional Plan - Greater Adelaide Regional Plan | PlanSA
- The LGA has supported Point Data Urban Policy Model for Councils under the Local Government Research and Development Scheme. Further information at: PointData Urban Policy Model for councils | LGA South Australia
- The Barossa Council commissioned an independent report into the state of housing affordability. Levelling up on housing • The Barossa Council

Victoria:

- Victorian Government (2024–25). Plan for Victoria – Statewide Strategic Planning Framework: https://www.planning.vic.gov.au/planforvictoria