

Article

Creating a Market for Disability Specific Housing on Indigenous Land: A Case Study from Yarrabah, Australia

Kate Sarkodee and Andrew Martel * 

Faculty of Architecture, Building and Planning, University of Melbourne, Melbourne, VIC 3010, Australia; k.sarkodee@student.unimelb.edu.au

* Correspondence: aamartel@unimelb.edu.au; Tel.: +61-3-9035-6537

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Abstract: Australia's National Disability Insurance Scheme Specialist Disability Accommodation (NDIS SDA) program anticipates new, disability specific, housing stock being built by private investors incentivized by cash payments and rental income. To date, very few new SDA dwellings have been constructed and the majority of the research and analysis of the program's potential has been in the context of apartment construction in major capital city markets in Australia. This paper uses a hypothetical case study of building SDA accommodation in a discrete regional Indigenous community, Yarrabah, in Queensland. It investigates underlying assumptions within the scheme, particularly around the relationship of land to investment outcomes, as well as cultural considerations. An important aspect is to test how effectively the design guidelines associated with the scheme translate into an appropriate built form that is culturally and environmentally appropriate in locations outside major urban centres. The results suggest that housing actors from the not-for-profit sector may benefit from the SDA at the expense of profit-driven, market-based housing developers, and that the SDA design categories offer limited flexibility for participants with changing care needs, potentially restricting resident continuity in occupancy and ongoing return on investment. The work offers an early assessment on the workability of the SDA in the context of housing investment in a new market for the private housing industry.

Keywords: Housing; disability; indigenous; investment

1. Introduction: The National Disability Insurance Scheme and the Marketization of Specialist Disability Housing

In 2013, the Australian Government launched the National Disability Insurance Scheme (NDIS), the most significant social policy development since the introduction of Medicare in 1975 and a commitment that is expected to directly impact 460,000 Australians at a cost of \$25 billion/year by 2022 [1]. The fundamental principles of the NDIS are 'choice' and 'control', with participants exercising these principles through the purchase of services within their individual plans. The NDIS is subsequently modelled on free market concepts and consumerism models, with those who consume services also having choice, participation, rights, and redress [2]. The rights to housing, and access to housing in the community, have been emphasized by the NDIS. This is consistent with international findings on the positive benefits of appropriate housing on health levels in general, and particularly the benefits of accessible and safe accommodation for people with disabilities [3–9]. Accessible housing, which places disability and access at the centre of design, has been promoted in Australia by the Livable Housing Australia (LHA) and Universal Design movements over the past decade, although there has been limited systematic impact on the broader housing industry [10]. At present, only a tiny proportion of the housing stock is suitable and affordable for people living on the Disability Support

Pension (DSP). A recent affordability snapshot noted that for a single person over 21 on the DSP, only 0.5% of rental accommodation available nationally was both affordable and appropriate [11] (p. 12). Expectations have consequently been placed on the NDIS to address this critical shortfall. However, the NDIS has not been structured as a housing provider itself and intends to work by encouraging market mechanisms for the majority of its participants, with a direct involvement in housing provision only for the most high-needs clients via its Specialist Disability Accommodation program (SDA).

With the advent of the NDIS, responsibility for delivering housing for people with extreme functional impairment or very high support needs shifted from the States and Territories to the Commonwealth's National Disability Insurance Agency (NDIA). The SDA Scheme came into trial effect in June 2016 and its Rules were registered with the Parliament in March 2017. This new scheme is the nation-wide policy for specialist disability accommodation and is designed to incentivize non-government players to invest in new housing stock that provides people with extreme functional impairment or very high support needs with greater choice in accommodation options. The SDA does not fund disability services (known as SIL's or supported independent living services), rather the homes in which those services are delivered. It is intended to offer effective housing support to the 6% of NDIS participants with the most complex needs. The intention behind the funding (when combined with resident contributions and land price inflation, as noted below) is to:

“Cover the efficient cost of providing accommodation over its full lifecycle, that is, establishing, operating, and replacing the accommodation, and therefore should allow providers to attain finance (debt and equity) in the private market”. [12] (p. 34)

In addition to cash payments from the NDIS, SDA providers are also entitled to up to 25% of the SDA participants' DSP and the full amount of Rent Assistance the participant receives, if any. Parents of an SDA participant are not permitted to reside at the dwelling, although the spouse or partner and children of a participant are. The scheme has been structured to appeal to private investors, housing associations, the charitable and not-for-profit sector, and individual investors, including NDIS participants or 'mum and dad' investors of NDIS participants wanting to secure appropriate accommodation. Housing can be registered as New Build or Existing Stock, with payments for New Builds substantially higher:

“To provide an incentive to a broad range of potential investors to respond quickly in constructing new properties to provide for unmet SDA demand” [12] (p. 10).

A dwelling that qualifies as 'New Build' (first occupancy certificate on or after 1 April 2016) can receive 'New Build' pricing for up to 20 years [12] (p. 18). The SDA is structured as cash payments to the SDA housing provider, as a contribution towards the cost of owning, operating, and maintaining an SDA approved dwelling. All the new dwellings must comply with Australian Building Code regulations, but as purpose built residences for occupants with high and specific housing needs due to the severity of their disabilities, the dwellings exceed minimum regulatory approval in many aspects.

Each SDA dwelling has a unique price based on a standard set of factors, including:

- Building type (i.e., apartment, villa, house, group home);
- design category (Basic, Improved Livability, Fully Accessible, Robust, and High Physical Support);
- whether accommodation for onsite overnight assistance is provided;
- whether an additional 'break out' room is provided (Robust design category only);
- location (a locational percentage factor is allowed in recognition of higher build costs, particularly outside of major cities); and
- fire sprinkler allowance [12].

Importantly, the payment structure is based on the characteristics of the (new) accommodation and not on a percentage of the development cost. This feature has a marked influence of the potential rate of return for an investor, as will be discussed later in the paper.

Design categories other than Basic (essentially already existing group accommodation) require either 'Silver' or 'Platinum' level housing design standards, as set out in the Livable Housing Design Guidelines Australia [13]. These guidelines set out a series of levels (Silver, Gold, and Platinum) concerning access, corridor widths, bathroom and toilet criteria, stairs, kitchens, laundries, etc. There are also a number of additional design features particular to each design category [12]. The design requirements are not onerous and preference non-institutional, normalized housing for individuals, small groups, or participants with families. Dwellings must contain a kitchen, bathroom, living/dining room, entrance/exit, and at least one bedroom to qualify as SDA appropriate.

Several important questions are raised by this approach to creating a market for disability specific accommodation. Firstly, is there really a market for specialist disability housing that the NDIS can incentivize? Classical definitions of markets, including property markets, emphasize the role of market mechanisms in efficiently allocating resources in response to supply and demand considerations, attempting to find a market equilibrium where property and land is allocated to the highest and best use, generally reflected in price. Market value is an economic concept based on the notion of trading one thing for another, and is:

"The most probable price in cash, or in other precisely revealed terms, for which the appraised property will sell in a competitive market under all conditions requisite to fair sale, with the buyer and seller each acting prudently, knowledgeably, and for self-interest, and assuming that neither is acting under undue duress" [14] (p. 53).

As many scholars have noted, however, markets rarely behave in so perfect a way, but:

"The property market as an institution is part and product of the overall urban institutional environment and, as such, economic, political, legal social, and cultural institutions affect its operation and evolutionary path" [15] (p. 102).

Market value assumes that an independent market exists [14] (p. 54). Swenson proposes a definition of a market as:

"A social structure that facilitates the exchange of goods and services. A market segment is a sub-group of people or organizations sharing . . . similar wants, needs, attitudes, and ways to pay" [16] (p. 627).

The property market is an institution that defines transactions as well as provision and use of property:

"It comprises a wide network of (formal and informal) rules, rights, norms, practices, conventions, etc., plus the associated organizations, through which property is defined, generated, used and exchanged" [15] (p. 118).

An organization, such as the NDIS, which sits between a potential housing investor and a person with a disability seeking a suitable housing solution, and which sets the mandatory design guidelines for the dwellings, the financial payment model available to the investor, and the eligibility criteria for a person to access SDA support funding, is positioned to be a significant market regulator and influencer because it controls the levels of both supply and demand. This contrived situation may still be able to provide the extra housing supply that is needed. However, in terms of SDA provision, the market exchange is of a good or commodity (the services aspect being dealt with by a separate NDIS package), the commodity here being a dwelling. A housing product is distinctive as a commodity as it combines the dwelling itself with the land it is situated on. Consequently:

"Housing production has long been dogged by its combination with land which has meant that development gain rather than production efficiency has been the principle source of housebuilders profits in the private sector" [17] (p. 115).

The supply of housing is limited by the supply of land, which is bounded and finite in a way that investment demand, local or international, is not. When coupled with the significant deregulation of banking internationally that has vastly increased the amount of money available for mortgages, the tendency is for land to support the creation of wealth rather than efficiently distributing housing to where the need is greatest [18] (p. 212). This is one reason why Archer and Cole (2014) note that ‘what makes the speculative builder unplannable is the operating logic that drives them; profit comes before output’ [19] (p. 107). The mandatory SDA guidelines largely ignore the role of land in housing value, setting a nationwide median land price at \$552/m² (in 2016 Australian dollars), with an assumed appreciation rate of 5% per annum in the 2016 Position Paper, which, presumably, (it is not stated) is reflected in the final Decision Paper [12]. This distorts further an already highly distorted market.

Housing markets most closely resemble their ‘pure’ classical model of a free exchange based on independent actors operating on the principle of supply and demand in major metropolitan centres, where there are multiple independent actors, a large supply of stock available to be exchanged, and sufficient information to keep the majority of participant actors well informed. Although, even in this case as mentioned above, an institutionist approach acknowledges the very significant institutional and legal frameworks necessary to allow the market to appear to function ‘on its own’ [15].

Where any of the characteristics of metropolitan markets are absent, an even more hands-on approach from government has been required to allow a market to function. In these circumstances, the political, social, and cultural institutional elements of property markets become increasingly visible and influential on the market outcomes, as noted by Arvanitidis [15]. An Australian example can be seen in the multiple attempts over the last decade and a half to introduce private home ownership to remote Indigenous communities. To date, private home ownership on Indigenous land has continued to be very limited [20,21]. As is detailed below, the issue of housing and disability in discrete Indigenous communities is a pressing one, and so a question is raised as to whether the NDIS’s SDA model based on free market principles can be successful in these communities?

1.1. The Case for a Non-Metropolitan Study: Indigenous Australians, Land, Disability, and Housing

The NDIS is a national scheme and as such will deal in the main with people who live in Australia’s major urban centres, and with well-established housing markets where the principles of supply and demand operate efficiently due to the scale of the markets involved. Over two-thirds of Australians live in capital cities, and the housing markets of Sydney and Melbourne dominate new dwelling construction [21]. Nationwide, the ABS’s latest Survey of Disability, Ageing, and Carers (SDAC) found an estimated 4.2 million Australians have a disability [22].

However, only one-third of Indigenous Australians live in capital cities [23]. Currently, 5.4% of NDIS participants are Indigenous, with 1.1% of participants living in remote or very remote areas of Australia [X]. A recent National Aboriginal and Torres Strait Islander Social Survey found that 45% of Indigenous Australians reported living with some form of disability and 7.7% needed assistance with core activities some or all of the time [24]. Among Indigenous Australians aged 15–64 years with a severe or profound disability, 82% experience physical disability, followed by sight, hearing, and speech related disability at 42%. The profile of disability service users among Indigenous Australians is younger than non-Indigenous service users [25].

The First Nation’s Network links the high prevalence of disability amongst Aboriginal and Torres Strait Islander communities to a range of social reasons, including poor health care, poor nutrition, exposure to violence, and psychological trauma and substance abuse as well as the breakdown of traditional structures in some areas [26]. There is also broad acceptance that there is a strong association between mental health conditions and other indicators of socio-economic disadvantage in Indigenous people. The National Mental Health Commission, in its 2012 National Report Card on Mental Health and Suicide, stated that within Aboriginal and Torres Strait Islander communities, ‘we must combat the vicious cycles of disadvantage that exacerbate mental and physical health issues’ [27]. The First People’s Disability Network state that the prime reason many Aboriginal and Torres Strait Islander people are at

the periphery of disability services is their reluctance to identify as people with a disability. This may be because there is no comparable word in traditional language for disability or there is reluctance to take on the label of disability having already experienced discrimination based on Aboriginality [27].

There is a growing body of literature on Indigenous Australians and housing and how it should be approached, designed, financed, delivered, constructed, evaluated, and modified [28,29]. The majority of housing stock in regional and remote discrete Aboriginal communities has historically been supplied through government initiatives. The National Indigenous Housing Guide [30] is the key document informing government supplied housing and its design, procurement, and maintenance. The Guide's focus on health and safety outcomes reflects its genesis in the work of Health Habitat and the environmental health design paradigm [31]. According to the most recent review of Australian Indigenous housing research, the pressing micro-issue emerging from recent literature is 'the necessity for culturally appropriate housing and an ongoing failure in the provision of such' [28] (p.72). Macro-issues dominating recent literature include themes of housing management, home ownership, affordability, and the lack of thorough indicators to measure the cultural appropriateness of housing [28].

There is very little literature on appropriate housing design for Indigenous Australians living with a disability. This paucity is also evident for First Nation people in New Zealand and Canada [10]. The most progressive contribution is Walls et al.'s, 'Home Modifications in Aboriginal Housing' [32]. Walls cites the high incidence of sub-standard, depreciated housing in Aboriginal communities as one of the most difficult barriers to overcome in implementing home modifications for enabling accessible environments for people with disabilities. Walls, building on Fien et al.'s [33] framework for remote Indigenous housing, offers a checklist of key issues and design elements that should be considered when designing home environments for Aboriginal people who are ageing or who have a disability, particularly in regional or remote areas. Checklist domains include cultural appropriateness; eco-efficiency; healthy living practices; employment opportunities; life cycle costing; and innovation in procurement, ownership, and construction systems [32].

This gap in knowledge encouraged the selection of an Indigenous community as the location of a test case into the flexibility of the SDA guidelines to deliver disability, culturally, and climatically appropriate housing outside of the metropolitan area, and to investigate the potential financial implications of building in a non-mainstream housing market.

1.2. Case Study: Yarrabah Aboriginal Community

The authors were approached by the Aboriginal community of Yarrabah in regional North Queensland, in partnership with the Centre for Appropriate Technology (CAT), to investigate appropriate architectural design and funding models for housing appropriate for people with a disability within the community. Yarrabah is located on the traditional lands of the Gunggandji people at Mission Bay on the Cape Grafton Peninsula, 60 km south-east of Cairns CBD. Yarrabah is a coastal community with a recorded population of 2687 [25], although it is closer to 5000 due to transient populations and Census non-registration [34]. In the 1950s, Yarrabah was the largest Aboriginal Mission in Queensland, with nearly 1000 people forcibly removed to the community from across North Queensland, the Torres Strait, and as far as the South Sea Islands. Consequently, community members claim both traditional and historical ownership of the land. Yarrabah's first Aboriginal Council was established in the 1960s and the Community received a Deed of Grant in Trust land tenure status in 1986. The majority of permanent housing in Yarrabah is social housing, funded through the National Affordable Housing Agreement. There is a culture of self-building with many community members maintaining permanent or weekender self-built dwellings outside of the township. Housing needs associated with disability are reported to Council on a weekly basis. Yarrabah's housing challenges and needs are typical of many regional and remote Aboriginal communities.

2. Materials and Methods

The research utilized a design research case study approach to test the SDA schemes parameters and guidelines, and investigate the underlying implications of the scheme. The design research approach taken is defined as ‘practicing the architectural design process of concern with functional and technological solutions, as well as empathy with human need and meaning, in the pursuit of gaining insight into possible solutions’ [35]. A feasibility study was conducted, including costing the designs and applying SDA financial modelling, to understand the limitations and possibilities afforded by the SDA scheme. The authors hypothesized that by taking a non-mainstream scenario—an Aboriginal community in regional North Queensland intending to build on land held in community title—and developing housing designs that met the SDA requirements, assumptions underlying the scheme would become evident. The authors further hypothesized that a non-mainstream case study would potentially problematize the SDA model and the NDIS’s anticipated outcomes.

The research approach included observation, consultation, document analysis, sketch design, and financial modelling activities. At the invitation of the Yarrabah community, the researchers visited Yarrabah in August 2016. Traditional and Historical Owners, Yarrabah Aboriginal Shire Council staff, and a CAT representative conducted a tour of two social housing dwellings under renovation, a community mental health residential service, and a street tour of social housing and self-built dwellings within the community to provide a baseline understanding of existing housing stock. During the first Yarrabah visit, project stakeholders gave presentations describing their aspirations for housing appropriate for people with mental and physical disabilities within the community. Face to face consultations were also undertaken with Aboriginal Housing Victoria and building practitioners with experience designing for and building in Aboriginal communities in North Queensland. The researchers undertook a second visit to Yarrabah in February 2017 to present the findings of the research to project stakeholders and to garner feedback.

To develop dwelling designs appropriate to Yarrabah’s climate, context, and needs, a number of key documents were reviewed, including: The Specialist Disability Accommodation Position Paper on Draft Pricing and Payments (NDIS released 1 April 2016), Specialist Disability Accommodation Decision Paper on Pricing and Payments (NDIS released 1 June 2016), National Disability Insurance Scheme (Specialist Disability Accommodation) Rules 2016 (Commonwealth Government of Australia, March 2017), and the National Disability Insurance Scheme (Specialist Disability Accommodation) Rules Explanatory Statement (Commonwealth of Australia March 2017).

A spatial planning analysis of the architectural plans of existing housing stock from three recent Indigenous social house building programs was undertaken to ensure that the dwellings developed for Yarrabah were comparable in size, materiality, and appropriateness for disability, climate, and culture. The schemes were the Home Ownership on Indigenous Land (HOIL), the Strategic Indigenous Housing and Infrastructure Program (SIHIP), and the National Partnership Agreement Remote Indigenous Housing (NPARIH) [36,37]. The analysis identified dwelling footprint sizes and areas allocated to living spaces and services spaces, such as bathrooms, circulation, and covered outdoor space. The plans were rated against the LHA guidelines. Assessment of their accessibility, privacy, cultural appropriateness, natural world connection, and environmental appropriateness was undertaken with reference to the Walls et al. [32] checklist for housing for Aboriginal people with a disability. In addition, photographs of housing examples in Yarrabah were analyzed, identifying materials, traces that indicate preferred patterns of living, and adaptations to dwellings due to cultural and climatic needs.

From this, three detached two-bedroom dwelling types were developed, each responding to a different scenario regarding a hypothetical occupancy profile (Table 1). The different occupancy scenarios proposed reflected potential need in the community and likelihood of receiving funding under the SDA guidelines.

All designs were appropriate to Yarrabah’s tropical climate, isolated location, and stated cultural requirements, and were taken to the sketch design stage to allow for preliminary costings to be undertaken. The following design parameters were applied:

Dwellings must meet the SDA design requirements for categories of ‘Improved Livability’, ‘Robust’, ‘Fully Accessible’, and ‘High Physical Support’. As ‘Improved Livability’ and ‘Robust’ must meet the Silver

LHA standards, and ‘Fully Accessible’ and ‘High Physical Support’ must meet the Platinum LHA standards, each dwelling type produced two iterations, one meeting LHA’s Silver Standard and one meeting LHA’s Platinum Standard.

Table 1. Dwelling types and occupants.

Dwelling Type	Occupant Description
A	Two single men
B	Family
C	Aged couple with carer

Dwellings must be culturally sensitive and respond to the checklist developed by Walls et al. 2013.

Dwellings must meet the Building Code of Australia specifications relevant to Yarrabah’s tropical climate and N3 wind rating.

Dwellings must fit within a similar building footprint to Yarrabah’s existing social housing (approximately 80–90 sqm internal floor area for a two-bedroom dwelling).

Dwelling construction cost should not exceed approximately \$200,000 each to construct, in line with the community’s financial capacity.

Dwellings must use conventional construction systems and materials to enable construction by skilled and/or semi-skilled tradespeople within the community.

The six dwellings developed for Yarrabah were then costed using Rawlinson’s Cost Construction Guide [38]. Build costs were based on building costs per square metre and, where possible, ‘Elemental Costs’ of buildings to ascertain initial feasibility. Costs included Rawlinson’s regional indices for Cairns (the closest regional centre) and an allowance for preliminaries and builders profit and overheads at approximately 5%. Costs excluded the Goods and Services Tax. The costing outcomes were then cross-checked against typical building costs for Cairns supplied by a local building company, Bama Construction Services. Allowances were made for the additional minimum design requirements for each SDA Category, and the allowance determined was:

- Improved Livability \$0;
- Fully Accessible \$10,000;
- Robust \$10,000; and
- High Physical Support \$20,000 (NDIS 2016a).

The SDA benchmark pricing model outlined in the Decision Paper [12] was then applied to the dwellings to determine the potential yield and return on investment (ROI). Several factors were considered in estimating yield and ROI, see Table 2. Costing of the housing designs are a per square meter estimate based on the use of local materials and building techniques and the input from a local builder. The variable factors influencing the ROI were confined to the number of residents with SDA packages, and the number of non-SDA, but rent paying, residents. Land costs were included (at \$200,000) or not. This figure is an approximation as all land lots are differently sized, however, the average size of lots in Queensland in 2016 was 444 m², while the sale price of new lots was \$240,000 across all of Queensland [39]. The value was reduced slightly as regional land is cheaper than metropolitan land in general. Another variable considered was the Loan-to-Value ratio. This was inputted as either 60% or 80% (representing a bigger or smaller deposit). Interest rates on the loan were valued at either 5% or 7.5% (current loan rates are at historic lows in Australia at around 4.5%). State based taxes were not included as they vary considerably between states.

Table 2. Variable categories in financial evaluation

Variable	Degree of Variation
SDA Category	Improved Livability, Robust, Fully Accessible, and High Physical Support
No. of SDA participants	1 or 2 SDA participants in residence
No. of rent paying non-SDA participants	0 or 1 non-SDA resident paying rent
Land Value	\$0 (land owned outright) or \$200,000
Loan-to-Value ratio	60% LVR or 80% LVR
Interest Rate on Loan	5% or 7.5%

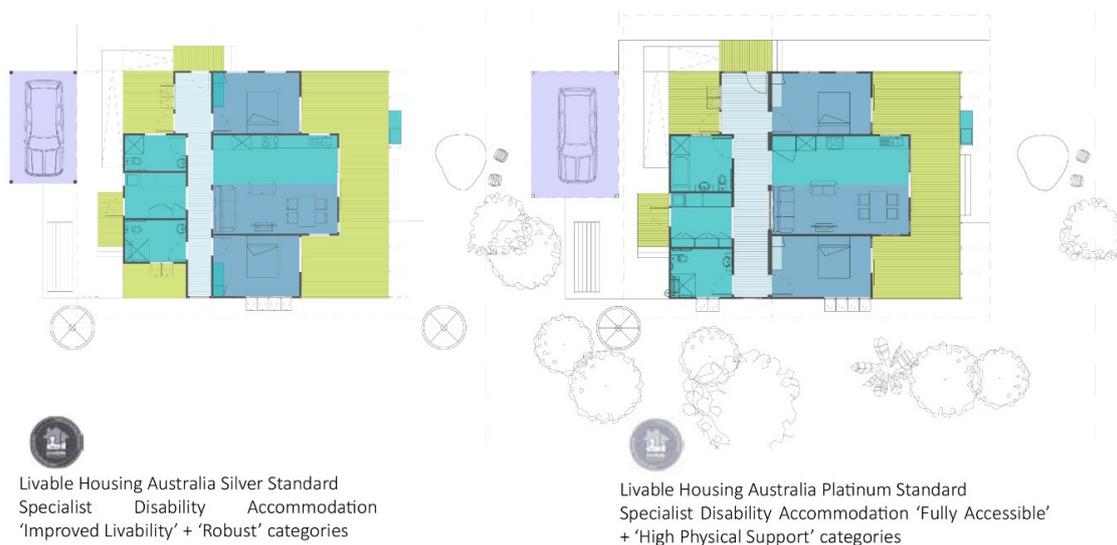
This approach is hypothetical, as none of the dwellings were constructed, and of necessity a limited number of financial and economic variables were considered. Notwithstanding this simplified approach, the limited number of variables produced 96 different scenarios, with the results calculated using the NDIS’s spreadsheet calculator [12]. For the purposes of this paper, only the minimum and maximum return on investment for each dwelling is discussed.

3. Results

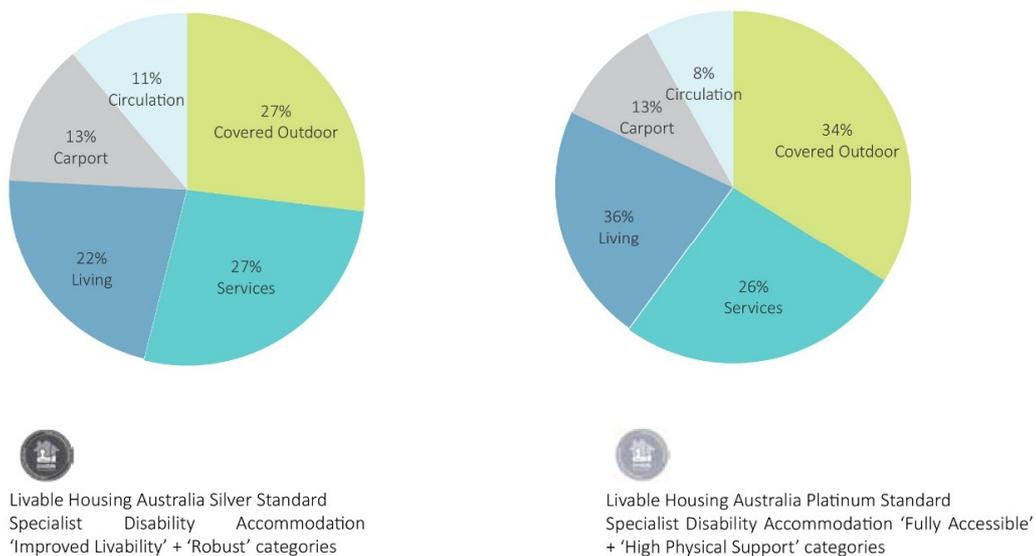
Six dwelling designs were developed that envisaged three occupancy circumstances (see Table 1 in Section 2) and complied with SDA guidelines and other relevant precedents. These are presented in the Figures 1 to 3 below which include the plans, spatial planning analysis, square meterage and costings as well as minimum and maximum return on investment estimations. These were then costed and measured against several financial criteria (Table 2) to obtain an estimate of the potential return on investment anticipated through the SDA guidelines. A full description is outlined in the Materials and Methods section of the paper.

Scenario I: Grid House (2 single men)

Spatial Planning



Spatial Planning Analysis



Build Cost

LHA SILVER STANDARD*

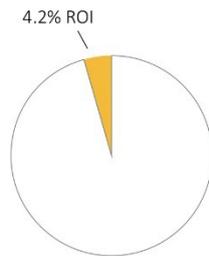
PROGRAM	SQM	COST
INTERNAL	89	\$177 576
DECKING	65	\$52 160
CARPORT	17	\$5 277
CONCRETE SLAB	70	\$5 228
TOTAL		\$240 240

LHA PLATINUM STANDARD*

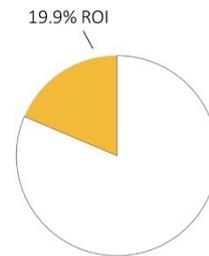
PROGRAM	SQM	COST
INTERNAL	107	\$213 251
DECKING	57	\$45 280
CARPORT	25	\$7 655
CONCRETE SLAB	82	\$6 150
TOTAL		\$272 337

* Build cost assumptions based on Cost per Square Metre according to Rawlinsons Construction Cost Guide (Rawlinsons, 2015). Costs includes a regional indices for Cairns and allowances for Preliminaries and Builder's Profit and overheads.

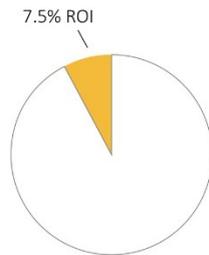
Return on Investment



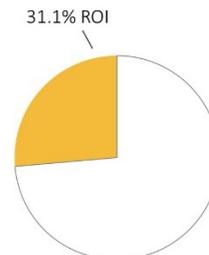
SDA Category: 'Improved Livability'
LHA Standard: Silver
Assumptions: 1 SDA participant, 1 rent payer, land cost \$200 000, 80% LVR, 5% interest.



SDA Category: 'Improved Livability'
LHA Standard: Silver
Assumptions: 2 SDA participants, land cost \$0, 80% LVR, 5% interest.



SDA Category: 'High Physical Support'
LHA Standard: Platinum
Assumptions: 1 SDA participant, 1 rent payer, land cost \$200 000, 80% LVR, 5% interest.



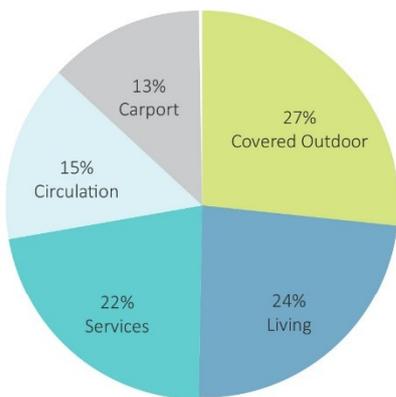
SDA Category: 'High Physical Support'
LHA Standard: Platinum
Assumptions: 2 SDA participants, land cost \$0, 80% LVR, 5% interest.

Scenario II: Pavilion House (family)

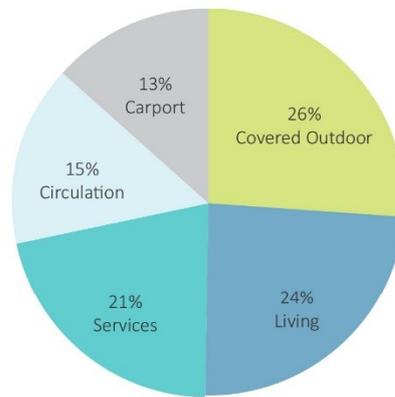
Spatial Planning



Spatial Planning Analysis



Livable Housing Australia Silver Standard
 Specialist Disability Accommodation
 'Improved Livability' + 'Robust' categories



Livable Housing Australia Platinum Standard
 Specialist Disability Accommodation 'Fully Accessible'
 + 'High Physical Support' categories

Build Cost

LHA SILVER STANDARD*

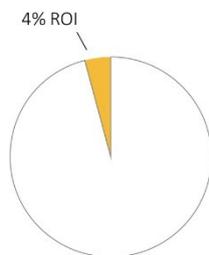
PROGRAM	SQM	COST
INTERNAL	85	\$169 405
DECKING	89	\$71 040
CARPORT	24	\$7 198
CONCRETE SLAB	25	\$1 882
TOTAL		\$249 525

LHA PLATINUM STANDARD*

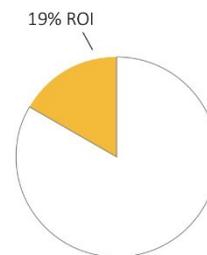
PROGRAM	SQM	COST
INTERNAL	90	\$179 968
DECKING	97	\$77 760
CARPORT	26	\$7 900
CONCRETE SLAB	30	\$2 265
TOTAL		\$267 892

* Build cost assumptions based on Cost per Square Metre according to Rawlinsons Construction Cost Guide (Rawlinsons, 2015). Costs includes a regional indices for Cairns and allowances for Preliminaries and Builder's Profit and overheads.

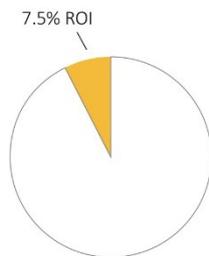
Return on Investment



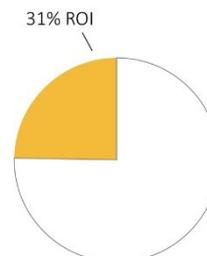
SDA Category: 'Improved Livability'
LHA Standard: Silver
Assumptions: 1 SDA participant, 1 rent payer, land cost \$200 000, 80% LVR, 5% interest.



SDA Category: 'Improved Livability'
LHA Standard: Silver
Assumptions: 2 SDA participants, land cost \$0, 80% LVR, 5% interest.



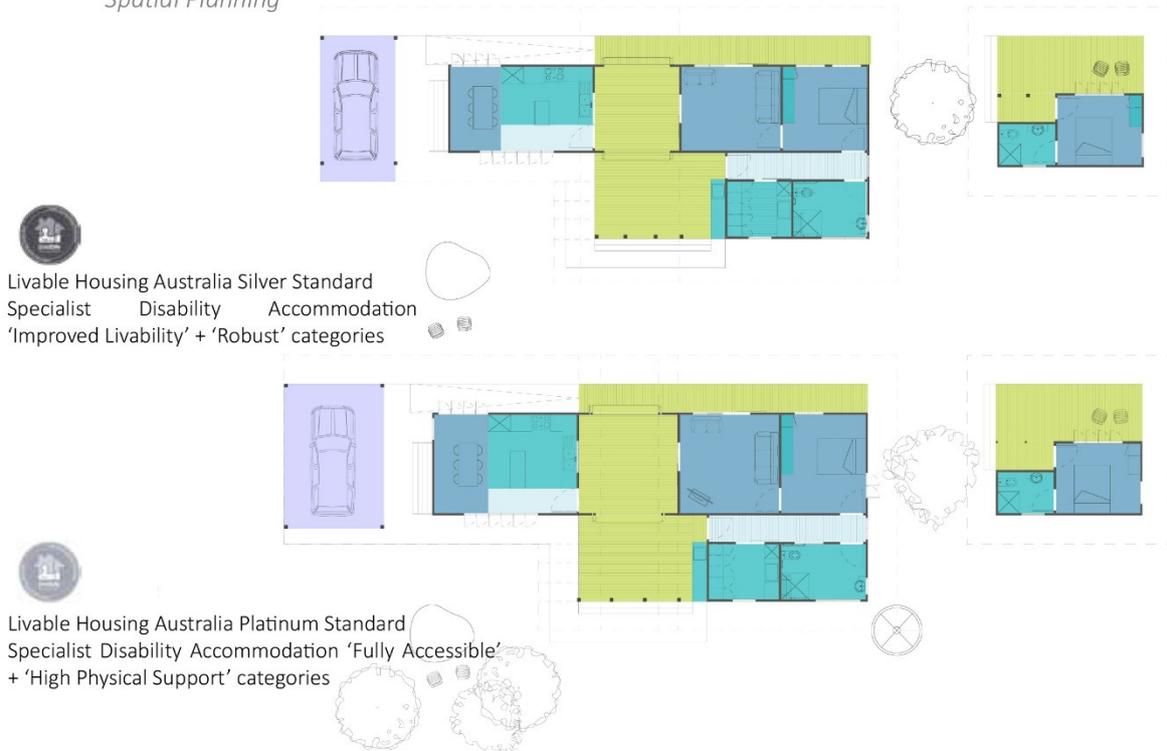
SDA Category: 'High Physical Support'
LHA Standard: Platinum
Assumptions: 1 SDA participant, 1 rent payer, land cost \$200 000, 80% LVR, 5% interest.



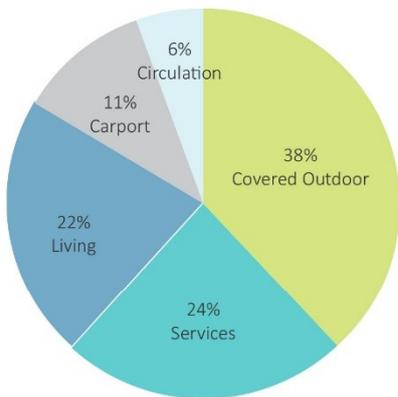
SDA Category: 'High Physical Support'
LHA Standard: Platinum
Assumptions: 2 SDA participants, land cost \$0, 80% LVR, 5% interest.

Scenario III: Bush House (couple + carer)

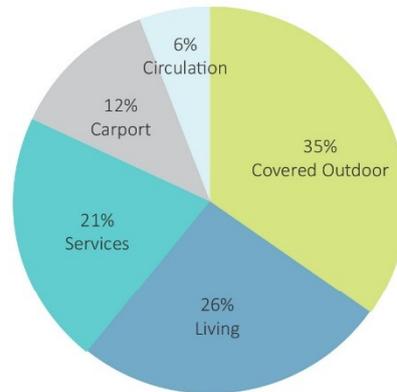
Spatial Planning



Spatial Planning Analysis



Livable Housing Australia Silver Standard Specialist Disability Accommodation 'Improved Livability' + 'Robust' categories



Livable Housing Australia Platinum Standard Specialist Disability Accommodation 'Fully Accessible' + 'High Physical Support' categories

Build Cost

LHA SILVER STANDARD*

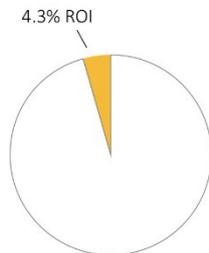
PROGRAM	SQM	COST
INTERNAL	82	\$164 223
DECKING	81	\$64 800
CARPORT	17	\$5 277
CONCRETE SLAB	20	\$1 515
TOTAL		\$235 815

LHA PLATINUM STANDARD*

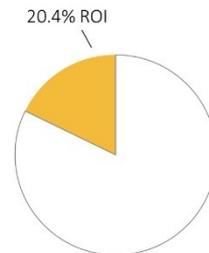
PROGRAM	SQM	COST
INTERNAL	93	\$184 353
DECKING	95	\$76 160
CARPORT	25	\$7 656
CONCRETE SLAB	24	\$21 793
TOTAL		\$269 961

* Build cost assumptions based on Cost per Square Metre according to Rawlinsons Construction Cost Guide (Rawlinsons, 2015). Costs includes a regional indices for Cairns and allowances for Preliminaries and Builder's Profit and overheads.

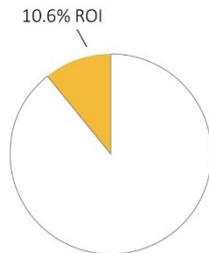
Return on Investment



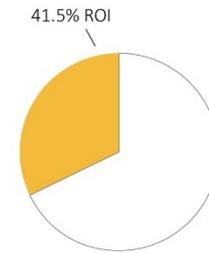
SDA Category: 'Improved Livability'
LHA Standard: Silver
Assumptions: 1 SDA participant, 1 rent payer, land cost \$200 000, 80% LVR, 5% interest.



SDA Category: 'Improved Livability'
LHA Standard: Silver
Assumptions: 2 SDA participants, land cost \$0, 80% LVR, 5% interest.



SDA Category: 'High Physical Support'
LHA Standard: Platinum
Assumptions: 1 SDA participant, 1 rent payer, land cost \$200 000, 80% LVR, 5% interest.



SDA Category: 'High Physical Support'
LHA Standard: Platinum
Assumptions: 2 SDA participants, land cost \$0, 80% LVR, 5% interest.

4. Discussion

4.1. Specialist Disability Accommodation Design Outcomes

The intent of the NDIS's SDA pricing and payments and its associated framework is to 'enable the development of a vibrant SDA supply market' and to 'bring increased choice and control for participants and enable greater levels of independence, and social and economic participation' [12] (p. 3). While this intention encompasses many deliverables for which success will be complex to quantify, the research findings suggest that the SDA model should be considered as a mechanism for addressing the critical lack of choice and control of disability accommodation in discrete Aboriginal communities. As the Yarrabah case study demonstrates, SDA benchmark pricing and payments may offer a profitable pathway for acquiring new specialized housing stock. The Yarrabah case study suggests that community land trusts, housing associations, Councils, and individuals within Aboriginal communities with access to land with minimal associated costs are particularly well placed to benefit from the asset development, guaranteed income stream, and potential return on investment.

The grounding of the SDA benchmark pricing and payments in the LHA Guidelines is both liberating and problematic. The LHA Guidelines focus solely on accessibility, and even at their most rigorous, are baseline enough to enable difference in cultural needs and climatic requirements to be expressed within the architectural design of a dwelling. This is welcome, particularly in the context of communities, such as Yarrabah, where the majority of housing is funded through the State Government and must adhere to guideline requirements that limit individual, cultural, and climatic expression.

Conversely, use of the LHA standards as a benchmarking mechanism restricts the possibility of dwellings being able to respond to the changing needs of SDA participants or participants with differing needs. It is practically very difficult for a dwelling to be upgraded from the 'Improved Livability' or 'Robust' categories (LHA 'Silver' standard) to the 'Fully Accessible' or 'High Physical Support' categories (LHA 'Platinum' standard) without significant structural adaptations that would likely prove to be a financial deterrent. For example, an 'Improved Livability' dwelling requires doorways with 820 mm clearances and corridors that are 1000 mm in width. A 'High Physical Support' dwelling requires doorways with 950 mm clearance and 1200 mm corridor widths. The marrying of pricing and payments to unadaptable benchmarks could have negative outcomes when the care needs of an SDA participant increase and a higher standard of housing is required. Relocating the participant to a higher dwelling category may not be possible (due to stock availability) or may be inconvenient and/or distressing. In addition, providers of SDA accommodation may find there is greater financial gain in constructing dwellings to the highest category ('High Physical Support'—LHA Platinum Standard) to allow for the greatest flexibility in SDA participant income streams. As discussed in the following section, this is a particularly high yield scenario in discrete Aboriginal communities, such as Yarrabah, where there are low or negligible costs associated with land.

In addition to meeting the LHA standards, each SDA category has other minimum requirements, some of which are achievable and appropriate within discrete Aboriginal communities and some of which, due to a range of cultural, climatic, and geographic factors, may be problematic. For example, the 'Robust' SDA category calls for 'resilient but inconspicuous materials that can withstand heavy use and minimize risk of injury and neighbourhood disturbance', such as high impact wall lining, fittings, and fixtures; secure windows, doors, and external areas; appropriate sound proofing; laminated glass; and a layout with an area of egress and retreat for staff and other residents to avoid harm if required [40] (p. 51). These features are appropriate to discrete Aboriginal communities where it is best practice to install robust fittings and fixtures [33], where it is usually desirable to have a secure dwelling and fencing [41], and where a layout that has multiple egress paths may be beneficial if there is a culture of avoidance practices [41,42].

A contrary example is that the 'High Physical Support' SDA category requires dwellings be supplied with 'heating/cooling and household technology (e.g., video or intercom systems) appropriate to the needs of residents' [40] (p. 52). Active technologies may not be possible or desirable

in some discrete Aboriginal communities, particularly where geographically isolated. Lack of skilled tradespeople to install and maintain equipment, degrading of equipment due to corrosive or high heat or high humidity environments, and high and unsustainable running costs are likely to undermine the benefits intended by this requirement. The intent of the requirement could be achieved through recognizing passive design solutions, such as use of materials and construction systems appropriate to the climate, design for cross ventilation, and layout of dwellings to enable passive surveillance.

4.2. Specialist Disability Accommodation Funding Model Outcomes

The three variables with the greatest impact on ROI were land value, the number of SDA participants, and the SDA design category. In scenarios where no land value was considered and two residents were SDA participants, the ROI was four or five-fold the size of the minimum condition (one SDA resident and land cost considered) for the same SDA house type. For example, in the ROI range for the SDA category of 'Improved Livability' (the lowest SDA accommodation category) with a land cost of \$200,000, one SDA participant and one rent payer was 4.1–4.3%. In scenarios with the same SDA category, but no land cost, and two SDA participants, the ROI range was 19–20.4%.

The highest ROI was achieved through applying the 'High Physical Support' SDA category (highest SDA accommodation category). In this scenario, with a land cost of \$200,000, one SDA participant, and one rent payer, the ROI range was 7.4–10.6%. In scenarios with the same SDA category, but no land cost, and two SDA participants, the ROI range rose to 31.1–41.5%, across the three housing types. It is clear that the SDA financial model assumes an underlying land cost in the cost of developing the investment dwelling. Discrete Aboriginal communities, such as Yarrabah, and other potential developers/investors with no upfront land costs, may potentially generate very large returns from the SDA scheme. Given the financial constraints on the overall SDA scheme, it may be assumed that this is an unintended consequence arising from cultural and financial assumptions underlying the scheme. Interestingly, the NDIS' Position Paper [39] contained a proposed provision against windfall profits. For land owned by State Governments, and leased/occupied by non-government providers at nil cost or below market value:

“In determining the value of the benchmark price, the funding methodology adopted by the Agency should not subsidize providers operating on publicly owned land . . . This essentially removes any windfall gains arising from existing ownership arrangements that are not fully priced.” [40] (p. 37).

However, this item (Note 17 in the appendix of the paper) was removed from the subsequent SDA Decision Paper on Pricing and Payments [12], and from the Rules approved by parliament.

The larger yields and ROI associated with higher SDA categories may incentivize providers to produce more housing stock at the highest category. The consequences this may have on eligibility for SDA participants assessed for a lower category of accommodation are unknown, but there is potential for new stock to be mismatched with actual housing needs. Furthermore, the substantially higher ROIs for 'High Physical Support', particularly when there are two SDA participants residing in the dwelling, may lead to a greater likelihood that non-related participants be encouraged to reside at the property to maximize yield. This could be problematic for discrete Aboriginal communities due to cultural considerations and it may be detrimental to kin obligations and responsibilities. More broadly, this undermines the principle of independence and choice of living companions.

A key assumption underlying the SDA financial model is that at the end of 20 years, an SDA property would revert to the general market and provide a lump sum cash flow to the investor equal to the (non-SDA) market value of the property. This would enable the investor to recover all costs associated with the investment and receive an institutional-level return on debt and equity.

This option is not available in discrete Aboriginal communities, like Yarrabah, or other entities, like religious-based community groups, who cannot dispose easily of land and assets on the free market, but who may be tempted to participate in the SDA scheme due to the large annual yields

available and a mandate to support disadvantaged people from their respective communities. This sets up a potential conflict between the not-for-profit sector looking at shorter-term income generation and market-based investors looking at a longer-term opportunity to generate capital gains, with both chasing the same small number of potential SDA qualified participants as tenants.

In addition to considerations about land cost, there are, contained within the SDA pricing and payments, cultural assumptions built into the stipulations around whom and how many people may live within an SDA enrolled property. The Decision Paper states that the dwelling must not be a family home, that is, not primarily used as the residence of the participant's family members, other than a partner or dependents unless the family members also have an NDIS plan that includes SDA [12]. The definition of dependents is not clarified. It could be presumed that at its intent, the SDA assumes a nuclear family arrangement. A key theme in the literature on Aboriginal housing is non-nuclear family arrangements and high mobility and population flux. The SDA Pricing stipulations may therefore not only undermine the culturally appropriate norms for SDA participants, but may also be difficult to enforce.

5. Conclusions

This research has attempted to anticipate possible outcomes of the NDIS's SDA program by developing a feasibility study in a regional Aboriginal community. The results point to some potentially interesting unintended consequences of the scheme's desire to appeal to the private sector housing industry that has historically not been involved in the provision of housing stock for people with disabilities. Despite rhetoric from the NDIA about encouraging a market-based investment mechanism to match supply with demand, the NDIS's effective control over both supply and demand through the SDA design requirements, payment schedules, and eligibility of SDA recipients, has created a severely distorted market. The decision to effectively flatten the land value component of the proposed dwellings will adversely affect the operation of a market that is already very wide (trying to attract private investment and not-for-profits) and intended to operate in major centres and regional communities. By removing the primary component by which private housebuilders make profit (land speculation and manipulation), the take up and success of the mainstream housing sector in this area remains to be determined.

However, this study suggests that non-typical housing market developers (Indigenous community organizations or religious groups, for example), may, on the one hand, be penalized for having non-typical landlord-tenant relationships between themselves and the SDA occupants, while, on the other, be the beneficiaries of very large financial returns, an order of magnitude larger than private sector investors might expect. There is a recognition of some concern in the last paragraph of the SDA Decision paper that supply might not be able to be effectively stimulated in 'regional, remote, or very remote communities' [12] (p. 37); yet, control of supply and demand may benefit regional and Indigenous communities if sufficient numbers of NDIS participants can be made eligible for SDA funding. This financial bonus, in addition to the natural advantage of not-for-profit actors in already knowing whether they have an SDA eligible tenant ready for placement, should provide substantial competition for the private market actors. Given the budgetary restraints on a scheme such as the NDIS, and the explicit desire to encourage more mainstream housing actors to be active in the sector, the results suggest that SDA payments need to be more flexible in recognizing the full range of economic parameters inherent in each new proposed dwelling. At the same time, the SDA scheme should recognize the diversity of kinship and familiar relationships in different communities in Australia, so that all communities feel that they are able to participate in the provision of housing for SDA recipients.

Although this was a small-scale and hypothetical case study, with the corresponding limitations on the extent that conclusions can be generalized, the study indicates that further research into whether non-market housing actors, such as community groups, religious groups, and Indigenous organizations, with access to land that is outside the usual pricing structure generated by a mainstream housing market, may be significant players in the new SDA housing market. The research is required

to determine the size of this cohort, and whether their particular relationships to potential SDA clients have implications for the choice and control aspirations of the NDIS.

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