



Smart speakers and radio distribution in Australia

A submission to the Department of Infrastructure, Transport, Regional Development, Communications and the Arts' *Radio Prominence on Smart Speakers* proposals paper

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Adrienne Arnot-Bradshaw is an early career researcher and PhD candidate in Media and Communication at RMIT. Her research considers the impact involvement in underground and DIY music scenes can have on developing political outlooks, with a particular focus on Melbourne's punk and post-punk music scene. Using ethnographic tools, Adrienne interrogates the scene's politically progressive reputation and considers the ways skills and political perspectives gained through the music underground may lend themselves to broader political activism.

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We thank DITRDCA for the opportunity to respond to the Radio Prominence on Smart Speakers proposals paper.

About this submission

Since 2019 our research team at RMIT University has been investigating the prominence of local content in smart device interfaces. Our work uses empirical methods including device testing, interface analysis, and audience surveys, in conjunction with industry and policy analysis, to produce independent evidence on local content curation in digital device ecosystems.

The research presented in this submission is independent of any industry funding, and has been supported by the Australian Research Council and RMIT University. As academic experts, we aim to provide evidence-based analysis to inform public policy decision-making. The focus of our work is on the needs of Australian audiences rather than on particular industry sectors or stakeholders.

This submission builds on our earlier research into connected TV prominence, including submissions to DITRDCA's *Prominence Framework for Connected TV Devices* Proposals Paper (2023), the Senate Environment and Communications Legislation Committee on prominence and anti-siphoning (2024), and the ACMA's *Implementing Australia's TV Prominence Framework* consultation. Our team was also invited to give evidence at the Senate committee hearings into TV prominence in Canberra earlier this year, where we presented our findings into audience engagement with connected TV interfaces. Building on insights from our prior research, this submission presents new evidence of smart speaker radio prominence in Australia based on device testing we conducted at RMIT in October 2024.

Our smart speaker testing framework

Our testing focused on the three most popular smart speaker platforms in Australia: Google Assistant (Google), Alexa (Amazon), and Siri (Apple). The specific devices tested were Google's Nest Mini, Apple's HomePod Mini and the Alexa Echo Pop.

The purpose of our testing was to assess how well each smart speaker could recognise and then provide the linear feed of Australian radio stations. In total, we tested 374 stations across the three devices, resulting in 1,122 testing instances. This master list of stations included:

- all ABC radio stations (67)
- all SBS radio stations (7)
- all licensed Australian commercial radio stations (260)
- a sample of licensed Australian community stations (five from each state and territory)

The testing procedure involved several stages. First, we reset each smart speaker to factory defaults and created a blank user account with a throwaway email address. We then issued voice commands (e.g., "OK Google, play [station name]") to determine whether or not the device could effectively recognise radio stations on our master list.

This was repeated for each of the 374 radio stations in our master list, and for each device. We recorded our results in a spreadsheet along with the verbatim speaker response, aggregator details, and relevant additional information.

To account for variations in voice and accent, we repeated the station name up to three times, speaking slowly, clearly, and from a position close to the speaker microphone. We became increasingly specific in our requests (i.e., we would first ask the speaker to play “PBS”, then “PBS FM”, then “PBS 106.7 FM”, then finally “the radio station PBS 106.7FM”). This distinction between simplified versus official name recognition is important because some users are unlikely to persist if the smart speaker cannot recognise the simplified station name.

The example below shows how we tracked testing results in our spreadsheet:

Official name	station	Simplified name	station	Google result	Apple result	Alexa result
2Day FM	104.1	2Day FM		Recognised simplified name “Streaming 2Day FM from TuneIn”	Could not recognise “Now playing Shonan Beach FM, provided by TuneIn”	Recognised simplified name “Playing 2Day FM”
PBS	106.7 FM	PBS		Recognised simplified name “Streaming PBS 106.7 FM from iHeart radio”	Required official name “Now playing PBS 106.7FM provided by iHeart Radio”	Recognised simplified name “Playing PBS”

Our findings represent a best-case scenario for station name recognition, as everyday user interactions are typically noisier, spoken from a greater distance, and users may issue less precise commands than we did in our testing.

Personalisation and localisation play an important role in smart speaker platforms; for example, smart speakers may use the user’s location and/or user-entered postcode to select the closest station in a national network (“Play Triple M” for a Sydney-based user will direct to Triple M Sydney rather than to Triple M Adelaide). Our research is not designed to assess the impact of localisation and personalisation, and we have sought to minimise the impact of these variables in our testing procedure.

Limitations of our study include its narrow focus on station recognition; it does not provide insight into actual audience interaction with smart speakers and the requests these devices receive “in the wild”. Our testing of community radio stations, using a sample of 40, also represents only an indicative sample of this diverse sector.

Table 1: Smart speaker performance in our station recognition tests

	Google Nest Mini (Google Assistant)	Apple Home Pod (Siri)	Alexa Echo Pop (Alexa)
Overall station recognition (simplified station name)	68%	41%	67%
By station type			
ABC-recognised simplified	84%	84%	81%
ABC-official name required	1%	0%	9%
ABC-not recognised	15%	16%	10%
	100%	100%	100%
SBS-recognised simplified	86%	86%	100%
SBS-official name required	0%	0%	0%
SBS-not recognised	14%	14%	0%
	100%	100%	100%
COMMERCIAL-recognised simplified	65%	28%	63%
COMMERCIAL-official name required	5%	5%	9%
COMMERCIAL-not recognised	30%	67%	28%
	100%	100%	100%
COMMUNITY-recognised simplified	58%	45%	60%
COMMUNITY-official name required	15%	20%	10%
COMMUNITY-not recognised	28%	35%	30%
	100%	100%	100%
Aggregators used			
TuneIn	9%	19%	21%
RadioApp	50%	0%	21%
iHeart Radio	4%	20%	3%
YouTube Music	34%	0%	0%
Apple Music	0%	50%	0%
Amazon Music	0%	0%	8%
Not specified	3%	11%	46%
Total	100%	100%	100%

Key findings

The top performing smart speakers in our test were the Google and Alexa devices, which were able to correctly recognise 68% and 67% of simplified radio station names in our sample respectively. In contrast, the Apple speaker could only recognise 41% of simplified station names in our sample. Overall, radio station name recognition varied considerably across the different categories of stations – public-service, commercial, and community – and requests often needed to be repeated with an official station name or call sign.

Public-service broadcaster (ABC and SBS) stations fared well overall and were the most easily recognised stations in our testing. All devices tested consistently recognised the vast majority (84%-100%) of simplified ABC and SBS station names. Only 1%-9% of public-broadcaster stations required an official name or call-sign for successful recognition.

Commercial radio station recognition was patchier. Google Assistant and Alexa devices recognised 65% and 63% of simplified commercial radio station names respectively. Siri performed poorly, successfully recognising only 28% of simplified commercial radio station names and an additional 5% when prompted with an official station name or call sign. This means that users of Apple devices may be unable to stream up to two thirds of Australian commercial radio stations – a significant challenge for those stations given that Apple’s assistant Siri is used also on Apple iPhones.

Community radio station names (simplified) were recognised around half of the time across all devices, with some important differences observed within this category. Urban community radio stations tended to have better name recognition than remote and rural community stations. In contrast, the First Nations community radio stations in our sample (First Nations Radio, Gove FM, 8CCC, Noongar Radio, Black Star, Triple A Murri Country) fared poorly, with less than a third of station names recognised. Google Assistant and Alexa performed best in their recognition of community radio stations, with 58% and 60% of simplified community station names recognised, respectively. Siri again fell short, recognising less than half of simplified community radio stations.

The need for users to specify official station names and call-signs was most evident for **community stations**, with devices requiring official names/call-signs for successful recognition up to 20% of the time (Apple 20%, Google 15%, Alexa 10%).

Finally, our analysis of **radio aggregators** in the smart speaker ecosystem found that RadioApp is the most widely used aggregator across platforms. RadioApp accounts for 22% of referrals overall (or 35% overall when excluding Siri, since Siri doesn’t connect to RadioApp), followed by TuneIn (16%) and iHeart Radio (10%). The role of aggregators is discussed further below.

Explaining the uneven performance of smart speakers

As well as describing the technical performance of smart speakers, our research clarifies some of the reasons why radio is inconsistently delivered to users of smart speakers.

Station name recognition depends on several factors, not all of which are under the direct control of smart speakers. For example, tone, clarity and background noise impact natural speech processing used by the smart speaker. Unique and distinctive station names (e.g., SBS South Asian) are easier for speakers to recognise than those with generic names used by multiple Australian and/or international stations (e.g., Hit FM). The complexity of the audio ecosystem also means that smart speakers need to make a best guess based on confusing or conflicting metadata. We noticed that radio station requests for Triple M, for example, often send the user to podcast content from that same station, rather than to the live stream.

These technical and metadata factors explain some of the challenges in delivering radio through smart speakers. No voice recognition system can deliver correct responses 100% of the time, and there is unavoidable noise and friction in this highly complex system.

However, there appear to be other commercial reasons why smart speakers do not index radio stations correctly. In our view, these factors should be the focus of policy attention as they involve a ratcheting-up of platforms' gatekeeper power that is harmful to the domestic media ecology.

1. Use of aggregators

Our research shows that effective integration with radio aggregators makes a crucial difference to the performance of smart speakers. The poor performance of Apple's platform in particular may be explained by a lack of integration with RadioApp, which indexes most Australian radio stations. This would suggest that smart speaker platform operators are failing to provide reasonable and equitable access to third-party services, with implications for competition in digital markets.

2. Self-preferencing

A related issue is the tendency for smart speakers to prioritise owned-and-operated aggregators and services. For example, the Apple HomePod delivered 50% of station requests through Apple Music, while the Google Nest Mini used YouTube Music to deliver 34% of station requests. Self-preferencing in the Alexa ecosystem appears less common, with 8% of Alexa station requests delivered through Amazon Music, although aggregator details are often not provided when using Alexa.

Self-preferencing in-house music and audio platforms enables the smart speaker to promote those platforms, giving them an advantage over other platforms and services including radio. For example, the smart speakers we tested often respond to some radio station requests with statements such as:

- When requesting 2DU Dubbo on Alexa Echo: *“Elevate your listening experience with Amazon Music on Echo. It’s free for 30 days and then \$6.99 per month after that.”*
- When requesting 2MO Gunnedah on Google Nest Mini: *“Choosing songs is only available with YouTube Music Premium, but you might like this [YouTube channel/playlist]”*

In summary, the number of intermediaries involved in radio delivery through smart speakers creates opportunities for intervention into and redirection of the user’s preferences. This creates incentives to de-prioritise third-party competitor services, including radio stations, while self-preferencing in-house services.

Policy recommendations

Our research finds that market forces alone, absent regulation, are unlikely to deliver consistent and equitable access to Australian radio services through smart speakers.

While smart speakers are successfully recognising 41%-68% of simplified station names, this overall level of performance is not acceptable for an essential media service such as radio. The commercial and operational implications for radio stations who are not discoverable on smart speakers, and on other smart devices that use these same platforms, are potentially significant.

Another consideration here is that music and audio services provided by smart speaker platforms (Apple Music, YouTube Music, Amazon Music) compete directly with traditional radio for audiences and advertising revenue. As such, it is important that smart speaker platforms be held to a high level of transparency and impartiality when delivering third-party content.

We believe there should be an obligation on smart speaker platforms to deal fairly with, and provide sufficient access to, licensed radio stations that wish to be distributed on those smart speaker platforms. In this sense we support the principle of regulating a minimum threshold of “consistent and reliable access” as set out in the proposals paper. In practice, this might take the form of an obligation to effectively integrate with aggregators who supply metadata for Australian radio stations and to ensure those stations are easily discoverable during voice searches by smart speaker users.

More broadly, a regulatory norm of “platform neutrality” should apply so that smart speaker platforms and other digital gatekeepers cannot unfairly leverage their control of the ecosystem for the purposes of self-preferencing or to extract rents from content providers.

This principle of platform neutrality should also be extended over time to include the on-demand content ecology and in-car entertainment systems. These use cases, which are out of scope for the current inquiry, will become important to local content providers in the years ahead, and should be regulated on the same basis – i.e., according to a principle of platform neutrality and non-discrimination against competitor content.

In recommending this course of action, we are mindful that radio services are not the primary purpose of smart speakers, which are also commonly used in conjunction with

subscription music streaming apps, as household assistants or control hubs, or to access news, weather and information. In this sense, the issue of radio prominence is fundamentally different from TV prominence: smart speakers, unlike smart TVs, are designed for a range of uses, and it may not be appropriate to impose prominence measures that would compromise other, more common uses of the device. However, we believe that a modest obligation to provide consistent and reliable access would in no way compromise any of those other primary uses or present an unreasonable burden on smart speaker platforms. The obligation to fairly integrate metadata of Australian radio stations and make those stations discoverable would likely entail minimal costs for smart speaker platform providers.

Regulating a minimum threshold of effective integration with licensed radio providers is, in our view, a reasonable and appropriate policy response that will help to address the discoverability challenges faced by Australian radio stations within the smart speaker ecosystem.