Competition and consumer issues in smart TV platforms

Response to ACCC Digital Platform Services Inquiry Discussion Paper for Interim Report No. 5

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I thank the ACCC for the opportunity to contribute to this policy process. Digital platforms, variously defined, have become integral to many aspects of everyday life, including media and news consumption, shopping, transport, and government services. The DPSI is a timely and essential intervention that will ensure a fairer, more transparent and more competitive platform system in Australia.

This submission addresses a specific development – **the extension of platform services into television,** specifically via **smart TV platforms**. I discuss the policy challenges arising from this phenomenon, and suggest approaches that will allow regulators to respond effectively to this challenge in the years ahead. Questions 4, 6, 7, 11 and 16 of the DPSI discussion paper are addressed.

The vast majority of TVs sold in Australia feature in-built **smart TV platforms** – software that regulates the key functions of the device, including the home screen, app store, search and recommendations. Smart TV platforms are comparable to mobile operating systems; indeed, several of the major platforms – Google/Android TV and Apple's tvOS – are derived from mobile OS. Consequently, many of the problems noted by the ACCC in respect to mobile – including anticompetitive practices in pre-installation, defaults, search bias, self-preferencing, intrusive advertising, privacy issues, and marketplace access issues for developers – are also occurring in smart TV platforms.

Since 2017, our team at RMIT University has been conducting research in this area. We are concerned by the creep of anticompetitive practices and consumer harms associated with desktop and mobile platforms into television – something that has occurred under the radar of regulatory scrutiny. Consumer harms, which we describe below, include search and recommendation bias (favouring content from parent companies and/or commercial partners), dark patterns, restriction/blocking of competitor apps, privacy violations, and enclosure/lock-in effects.

We believe the implications of smart TV platforms for consumers and media industries are significant, and bear directly on longstanding issues in consumer, competition, and media policy including media diversity, marketplace access, and consumer protection. The ACCC's approach to platform regulation would therefore benefit from consideration of the overlaps and differences between desktop, mobile and TV platforms, as well as other IOT/smart-home platforms in development.

In this submission, I describe some current developments in smart TV platforms and what they mean for consumers and media providers in Australia. I also refer the ACCC to related submissions in which our team has discussed the more specific issue of platform-enabled discoverability for Australian media content providers.[1]

[1] See our submissions to recent Department of Communication inquiries, notably Lobato and Scarlata, 'Response to ACMA/Screen Australia Options Paper', June 2020; and Ramon Lobato, Stuart Cunningham and Alexa Scarlata, 'Response to Media Reform Green Paper', May 2021.

Smart TV platform markets in Australia

In Australia, smart TVs have been embraced by consumers. The Australian Communications and Media Authority (ACMA) estimates that 56% of Australians use a smart TV.[2] ACMA research also notes widespread use of streaming devices such as Apple TV (used by 12% of the Australian adult population), Chromecast (18%), and Telstra TV (8%). These data suggest a wider 'platformization' of television content, services, and viewing behaviours is underway in Australia, as in most high-income countries. Consequently, the idea of television as an algorithmically curated, personalized, app-based experience is now becoming mainstream.

The key players in smart TV platforms are Google, Apple, Amazon, Roku, Samsung, and LG. Google, Apple, and Amazon are US-based tech giants already of interest to the ACCC, whereas Samsung, LG and Roku are consumer electronics firms that have moved into platform services. Business practices in smart TV platform markets are complex. As shown in Table 1 below, smart TVs produced by the largest manufacturers – Samsung and LG – come with built-in platforms designed in-house. Other manufacturers such as Hisense and TLC license their platforms from Roku or Amazon. Google's AndroidTV product is a widely used, free-to-licence product. Apple's smart TV platform, tvOS, is exclusive to Apple devices.

Table 1: Leading smart TV platforms

Platform	Owner	Preinstalled on	
Tizen	Samsung	Samsung TVs	manufacturers
webOS	LG	LG TVs; also licensable	
Fire OS	Amazon	FireTV sticks + Westinghouse, Toshiba, Insignia, Onida TVs	tech companies
Roku OS	Roku	Roku streaming devices + Hisense, Haier, Hitachi, TCL TVs	
Android TV	Google	Sony, Sharp, Philips TVs + various pay-TV set-top boxes	

Presently, smart TV markets are highly fragmented. Video apps are unevenly supported and maintained across different platforms, meaning that access to content can be negatively affected depending on what brand of TV you own. Broadcasters, including the ABC and SBS, face a major challenge in providing universal service under these conditions, and must invest significant resources in developing, testing, and updating apps for different smart TV platforms.

[2] Australian Communications and Media Authority, '[Communications and media in Australia: How we use the internet]' Interactive Report, 10 December 2021.

A previous submission from FreeTV to the DPSI noted this problem as a major concern for the sector.[3]

However, we expect that this fragmented market will become more concentrated in coming years, **consolidating around a handful of mega-platforms**. This has been the case with mobile and desktop software historically, and we anticipate similar dynamics in television. The key beneficiaries will be those platforms with the largest economies of scale and network effects (certainly Google, and possibly Amazon and Roku). The market will also become increasingly organised around data advantages and investment capacity, again favouring the biggest players.

Over time, policy governing television services – historically framed through the lens of media, screen, or audiovisual policy – will continue to converge with digital platform regulation, both institutionally (because the largest tech companies are now also key players in TV software) and because future consumer practice will destabilise current medium-specific distinctions between television and digital media.

Smart TV platforms and the Digital Platform Services Inquiry

Smart TV platforms are not explicitly considered in the ACCC's current inquiry, but are relevant for several reasons. First, smart TV platforms exemplify a wider challenge in technology regulation - the ever-increasing **dispersal of platform capabilities across devices and services**. Smart TVs, along with other devices such as smart speakers and fridges, can be defined as platforms in their own right; yet many smart TV platforms are also integrated into larger mega-platforms, and send personal data "back to the mothership" to benefit the parent company.

Smart TV platforms have other other characteristic features that are in scope for the Digital Platform Services Inqiury:

- They provide a range of services including personalised search and recommendations. In this sense, they can be considered '**specialised search services**' as per the DPSI terms of reference;
- They include their own **app stores** and **recommendation engines** which bring into play many of the anticompetitive practices (such as dark patterns, priortisation, self-preferencing, and restricted marketplace access) described in DPSI reports;
- They are **multisided markets** that integrate a range of participants including users, content providers (broadcasters, streaming services and other media companies), third-party developers and advertisers;
- They are **gatekeepers** that control consumer access to third-party content and services (including apps, channels, games, news, music, and other information services) while also controlling these same businesses' access to consumers.

[3] FreeTV Australia, submission to ACCC Digital Platform Services Inquiry, 17 November 2020

- Three of the major global tech companies now have their own smart TV platforms – Google/Android TV, Amazon Fire TV, and Apple tvOS. Each is closely integrated with its parent company's flagship products, such as Google Search, Apple iOS and devices, and Amazon's shopping platform. These integrations raise obvious risks of anticompetitive conduct such as bundling of services, self-preferencing, and marketplace blocking.

However, smart TV platforms require special regulatory attention as their design renders ineffective common remedies in platform regulation, such as choice screens. Smart TV platforms are hardwired into devices and control the major features of the device: users cannot simply switch to another platform. As a result, **regulatory approaches based on choice and switching ability – as in the case of browser-based search – will not work for smart TVs**. This is also true of other smart devices bound to their pre-installed platform, such as smart speakers. Regulatory attention must therefore focus on business practices *within* the platform, as well as choice *between* platforms.

Smart TVs and news discovery

Smart TV search, unlike text-based search, present search results as a grid or sequence of images. Most smart TVs currently allow users to search a wide range of video content across installed apps, including SVOD services, TVOD services, and AVOD services including YouTube. While smart TV search is designed for TV and movie title queries (e.g., "*Encanto*"), many smart TVs will also return diverse results for general search terms (e.g., "Ukraine war", "vaccine"). The growing use of voice search in smart TVs will accelerate this process.

Smart TVs therefore **need to be considered as part of the news ecology in Australia**, as they play a growing role in video discovery and filtering. In the years ahead an increasing number of Australians will use voice-enabled smart TVs to search for video content about current events, politics, local and global news, and social issues. Recent world events have underlined the public-interest harms of polarisation, bias, and mis/disinformation in online news. While much of this discussion has focused on mobile and social media, smart TVs are emerging as another important site of news discovery.

Rather than taking desktop search or mobile search as the default search experience, **regulators need to consider the specific affordances of other "smart" devices**, noting that the same search query can return quite different results when performed on different devices. For example, the number and order of search results returned on a smart TV will depend on variables such as pre-installed apps, prominence agreements with commercial partners, and preferencing of in-house apps (e.g., Android TV preferencing YouTube).

Consumer harms in smart TVs

1. *Tracking and surveillance*

Smart TV platforms, like many other smart home devices, are designed to collective extensive personal data. Research has confirmed that tracking is pervasive on streaming devices, such as Roku TV and Amazon Fire TV.[4] User actions such as app downloads, app usage, and viewing times, are tracked to build up a detailed data profile of each user. Devices share information with a wide range of third-party services including data brokers and ad-tech platforms. In the case of FireTV, Android TV and AppleTV, personal data generated by TV viewing is integrated into existing customer data-profiles arising from shopping and web search/use. A customer's TV viewing activity can effectively be used by platforms as a proxy for their future consumption practices.

More concerningly, smart TVs can also track what customers are watching *within third-party apps* such as Netflix or Stan. **ACR (Automated Content Recognition)** is a content ID technology built into smart TVs that uses video fingerprinting to identify specific shows, episodes, movies and ads ('what the glass sees'), and to feed this viewing data back to advertising partners. ACR is pre-installed into many smart TVs via covert apps such as Samba, a tracking app masquerading as a personalised recommendation engine. Users typically have the option to accept/deny ACR during setup or via adjusting settings, however the data collection aspect of ACR is often obfuscated during setup and/or users are often pushed into accepting ACR in exchange for the promise of advanced recommendations or personalisation features. We regard these practices as deceptive and believe stronger controls are needed to prevent the misrepresentation of ACR-based apps such as Samba. Their benefits to the consumer are questionable and their harms clear.

Over the last decade there have been several high-profile instances of smart TVs "spying" on users (always-on microphones/cameras), although this practice is exceptional rather than typical. Smart TVs can also be covertly hacked and used for surveillance purposes – a risk common to many smart home devices. While these instances receive significant media attention, we believe the more relevant harms from a consumer policy perspective are related to routine personal data collection and use of ACR within smart TVs.

2. *Commercial preferencing and self-preferencing, including algorithmic bias in search and recommendations*

A further consumer harm arises from how smart TV skew recommendations and search results to favour advertisers and platforms' parent-companies. The UK media regulator Ofcom

[4] Hooman Mohajeri Moghaddam et al, 'Watching You Watch: The Tracking Ecosystem of Over-the-Top TV Streaming Devices', 2019 ACM SIGSAC Conference on Computer and Communications Security, November 11–15, 2019, London, United Kingdom.

commissioned a detailed study on this topic in 2019 (MTM 2019)[5] It found that smart TV platforms negotiate with commercial partners to determine preferential visibility across almost all aspects of the TV interface, including the home screen, remote control, recommendations and search results. As the report notes, “deals can be highly complex with a wide range of variables being negotiated” (11), including

- content availability
- pre-installation of apps
- prominence within the smart tv home screen (“positioning of apps”)
- prominence and ranking within the app store
- prominence within sub-menus
- control of onward journey
- levels of metadata integration, extending to “deep-linking and data sharing” (12)
- preferential surfacing of in-app content on the home screen “subject to negotiation between the TV platform and individual content providers” (22)
- “inclusion and input into curated and personalised recommendation sections” (29)
- preferential visibility within search returns
- branded remote-control shortcut buttons (e.g., a Netflix or Hulu button).

Ofcom found that most aspects of TV “real estate” are now essentially for sale. Additionally, in the case of the large tech players – especially Google and Amazon – there is extensive self-preferencing of owned-and-operated services. For example, smart TVs running Android TV prioritise YouTube and Google Play in search returns, while Amazon’s Fire TV prioritises content available through Amazon Prime Video.

These practices pose consumer risks. Many consumers have limited or no understanding of self-preferencing and prioritization and how they shape the content choices on their TV. Consumer choice is compromised when many of the content options displayed to the user are there because they are paying in some way for the screen real estate. This also poses a problem for content providers outside this commercial system, including most public-service broadcasters, whose content is rendered less visible and discoverable than content from the platforms’ commercial partners.

3. Dark patterns

Like mobile and desktop platforms, smart TVs platforms are full of dark patterns in their user interface design. Examples that we have observed include:

- Privacy opt-outs being buried within sub-menus
- Subscription cancellations requiring many steps to action
- Consent to terms and conditions during setup featuring “agree to all” (encouraging click-through without reading)
- Settings menu being difficult to find and use
- Limited ability for users to customise their home screen layout

[5] MTM, “Review of TV interfaces in the UK market: Current offerings and future development”, commissioned by Ofcom, May 2019.

- Platforms requiring users to sign up for an account with the manufacturer/platform to use the device or access further benefits

4. Opaque bundling and billshock'

In overseas markets, smart TV platforms are increasingly bundling recurring subscription and service costs into single line-item billing. For example, users of Amazon Fire TV can add HBO Max as an optional service. Fees are billed monthly and bundled with other channels or service fees (e.g., Amazon Prime membership + HBOMax) and then billed as a single line item on the customer's credit card statement. For many consumers, it is hard to keep track of their subscriptions, because they do not see separate line items on their credit card statements. These billing arrangements can result in customers being charged long-term for channels they no longer use or are unaware they subscribe to. In multi-user households, there is also a risk of unwanted subscriptions being added by other family members or housemates (a risk mitigated, but not eliminated, by password/account controls).

While these billing arrangements are still nascent in Australia, norms in the US market suggest these bundling practices will arrive here in coming years.

Regulatory options

Our team believes that it is important that the ACCC define platforms to include the growing variety of platform-powered devices and services now coming onto the market, including smart TVs. It must do so in a future-proof manner that can encompass present and future derivatives of current platforms as well as their more 'pure' instantiations in mobile and desktop devices.

We are concerned that certain remedies proposed by the ACCC cannot effectively be applied to television. For example, choice screens will not work in this environment because search engines are integrated into the hardware and software of TV devices and cannot be switched with a competitor product. Smart TV users are effectively locked into their manufacturer's chosen platform ecosystem for the life of the device (5 to 7 years on average).

We believe the most effective regulatory remedies are likely to be those that clamp down on anticompetitive and harmful business practices *within* smart TV platforms, rather than those encouraging users to switch to a competitor product. As the Interim Report notes, these 'broad-based practices' are often difficult to regulate – but in our view such regulation will be crucial to avoid the most significant consumer harms.

To this end, we offer the following recommendations:

- We support **prohibitions against exclusionary conduct**, including **anti-competitive self-preferencing and leveraging** – especially measures designed to prevent "search

engine operators from favouring their own downstream services [and] demoting rival services" (86). This will help to reduce problematic instances where smart TV platforms leverage their market power into a related service.

- We support a **Fairness by Design duty** similar to that proposed by the UK's Competition and Markets Authority.[6] This principle-based obligation would encourage platforms to respect consumer choice and autonomy in their interface design. In particular, we support a requirement that "choices and defaults provided by the platform are presented in a way that facilitates informed consumer choice over the use of their personal data" (98). This may also reduce the use of dark patterns, or at least curtain their worst excesses. It is important that an expert independent body be charged with oversight of the FBD duty, so that compliance can be measured over time.

- We support **transparency disclosures** by smart TV platforms. For example, the ACCC could require platforms to **label content, apps or other services** that have paid for prominence. As is currently the case with Google web search, these items could be marked with a small "Ad" label or a similar indicator. This would help consumers distinguish between organic versus artificially promoted content.

- We support the rights of Australians to **modify their devices** in line with their existing statutory consumer rights. To this end, TV platforms should be forbidden from pre-installing "un-deleteable" apps, excluding software essential to the functioning of the device. Consumers should also have the option to rearrange home screen icons and other design elements to the fullest extent possible, to moderate the effects of commercial pre-installation and prominence agreements.

- We support a public-interest **prominence rule** (i.e., a requirement that smart TV manufacturers provide due prominence to a limited number of apps deemed to be of public interest, such as public broadcasters and nationally-significant media companies). In practice, this would require manufacturers to pre-install designated apps and to provide them with a reasonably visible home-screen position. This rule would help to ensure the long-term discoverability, and therefore viability, of local media organisations within the global TV platform ecosystem. We would refer the ACCC to the UK media regulator Ofcom's 2019 prominence proposal which provides a detailed set of recommendations in this regard.[7]

Given the dynamic nature of technology markets, it may be impractical to specify detailed measures in legislation. Legislation can instead refer instead to general principles. The ACCC and ACMA should be empowered with the authority to enact specific regulatory measures in line with these overarching aims.

[6] Competition and Markets Authority, 'Online platforms and digital advertising: Market study final report, 1 July 2020', July 2020.
[7] Ofcom, 'Review of prominence for public service broadcasting: Recommendations to Government for a new framework to keep PSB TV prominent in an online world', July 2019.

Conclusion

The case of smart TV platforms highlights some inherent risks in current technology development and corresponding limitations in platform regulation. We believe the ACCC's definition of platforms needs to capture the diversity of platform-enabled devices and platform-powered services so it can respond appropriately to consumer harms. It must do so in a future-proof manner that can capture present and future derivatives of current platforms.

The measures suggested here for smart TV platforms will, we believe, play an important role in making Australian television's emerging platform economy fairer, more equitable and more transparent for consumers. These measures also serve the larger objective of ensuring that the ACCC's platform regulation approach can be adapted for the future dispersal of platform-like functions and related risks across many areas of the Australian economy.

Our research team would be happy to provide more detailed information on smart TV platforms or to meet with the ACCC to discuss these matters further.