



LOW CARBON LIVING  
CRC

## RP 3028: Towards more energy efficient home renovations. An exploration of social media networks



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The author(s) confirm(s) that this document has been reviewed and approved by the project's steering committee and by its program leader. These reviewers evaluated its:

- originality
- methodology
- rigour
- compliance with ethical guidelines
- conclusions against results
- conformity with the principles of the [Australian Code for the Responsible Conduct of Research](#) (NHMRC 2007),

and provided constructive feedback which was considered and addressed by the author(s).

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## Acronyms

CRC LCL Cooperative Research Centre for Low Carbon Living

TriSMA Tracking Infrastructure for Social Media Analysis

## Executive Summary

### The challenge

Government policies and programs have had relatively limited success in fostering widespread adoption of energy efficient products and solutions in Australia's residential sector. Part of the problem has been the reliance on behaviour change models that assume consumers to be rational individualistic actors, who can be influenced by more and/or improved information, education and market prices. However, a vast interdisciplinary literature has provided a critique of this model, instead drawing attention to material, structural as well as social and cultural factors that shape consumption.

This report draws on the media research to address the cultural and communicative dimensions of consumption as everyday practice – focusing on what people routinely do as consumers and media users. It contributes to empirical studies of the role of media as popular sources of communication, inspiration and learning. The report explores the general patterns of social media conversations and public engagement broadly related to sustainable/energy efficient home renovations in Australia. The research material in the form of social media data was collected from two key platforms: Twitter and Facebook (public Facebook pages) in 2016 and updated in 2017.

### Key findings

This exploratory social media research confirms:

A strong Twitter and Facebook page activity by accounts related to established media outlets such as *Domain.com.au* or popular reality or lifestyle shows such as *Better Homes and Gardens*. They utilise social networking sites to assist in promoting themselves, their messages and attracting larger audiences;

Different actors prioritise different social media platforms for communication and public engagement. This finding corresponds to a well-established media studies argument about different platforms having different characteristics, thus encouraging different types of user interaction and engagement. There is also notable amount of circulating posts across different social media platforms and internet to reach larger audiences;

Based on the number of comments, leading Facebook pages in terms of engagement in the sample are *Better Homes and Gardens* FB page and *Domain.com.au* FB page. The majority of posts on their respective pages contain links (followed by photos and videos) and attract a high number of comments;

The Twitter analysis identifies @The Block and @ShaynnaBlaze accounts as the most engaged in the sample based on the largest number of replies to tweets. The analysis reveals also a high level of cross-promotion by using @mentions and hashtags to accounts and hashtag streams associated with the reality show and

the celebrity including their host broadcasters and associates;

Accounts in the environmental, not-for-profit category (e.g. @beyondzeronews and @renew\_economy) demonstrate an active deployment of retweets and links to spread messages related to green living as their chief purpose but they have not been recognised 'highly engaged' based on the measure of engagement applied here. More generally, however, the study reveals Australian environmental not-for-profits such as BeyondZeroEmissions, RenewEconomy or The Climate Council are quite active (Twitter), as are international high-profile environmental orgs such as Greenpeace and Al Gore's Climate Reality Project (Facebook pages);

While the research confirms a comparatively low level of engagement by government organisations' accounts, there are also notable exceptions. For example, the most 'liked' single message in the sample was posted on the City of Melbourne Facebook page with over 50k likes to the message on The 2016 C40 Cities Award and local projects to combat climate change;

There are a few practical recommendations for communication about energy efficiency in the residential contexts, especially for formal communicators such as government organisations. These recommendations are geared towards increasing the visibility of 'green' content/messages as well as the support of social networking for the public conversation about green living:

- Explore the potential to connect to related active and trusted social networks and online communities through having your messages posted, retweeted and/or mentioned there. Some popular accounts with established and engaged online communities might exist within the communicator's existing web of partners. For example, the *NSW National Parks and Wildlife Service* (part of the NSW government's Office of Environment and Heritage) appears quite engaged via its Facebook page (based on the number of comments). While not focused on the residential energy efficiency per se, it may be a useful platform for sharing some posts to its networks;
- Tie information, content and/or media campaigns to public or community events – for example, environmental awards (hosted by local councils such as Melbourne's Yarra Sustainability Awards or national such as the United Nations Association of Australia's Climate Action Awards); established events such as festivals (Sustainable Living Festival) or Sustainable House Day;
- 'Localise' green information/messages to make them as relevant as possible to people's needs in local settings;
- Experiment with creative ways of communicating financial information about green products, associated labour costs and/or cost benefit. Simple yet effective examples include incorporating price



into stories and images (e.g. *Houzz Interior Design Ideas* app's still images or TV *Grand Designs Live Shows* moving images showing off price tags for products);

- Embed information about sustainable/energy efficient homes within broader conversations about good living as part of everyday life.

It is important to emphasise that these practical take-aways be considered within social and communication

structures – recognising the plurality of media and communication sources, and the fact that people make consumption decisions based on their private circumstances and social and financial capital.

## 1. Introduction

### The problem

Official policies and programs have relatively little success in encouraging widespread adoption of energy efficient goods, solutions and practices in Australia's residential sector.

### The challenge

The key question is how to best grow the demand for and use of energy efficient products and solutions within households – particularly when people improve their properties through maintenance, upgrading or renovation?

### Context

There has been no shortage of policy interventions at federal, state and local government levels to encourage a more sustainable housing sector, including regulation, tax allowances and education (Karvonen 2013). Some government-led interventions have been successful – for example, solar technologies linked to financial incentives. However, there is widespread academic and policy consensus about:

- i. the **diversity and 'messiness' of the housing sector**, where home occupiers are focused on home making (affect) rather than profit making (rationality/utility);
- ii. the significance of **social mechanisms and information sharing for consumer markets**, especially the importance of trusted social networks; and
- iii. the rise of **digital media and communication technologies** and their role in shaping social practices in consumer markets.

### This research component and report

This report updates and extends the preliminary analysis of Twitter and Facebook-based communities in Australia conducted by Podkalicka in 2016, and contained in the 2016 interim report by Podkalicka and Hulse, with parts of it drawn upon here, and also included in Podkalicka et al. 2016.

This report is part of a broader CRC for Low Carbon Living project, which is modelling the uptake of low carbon and energy efficient technologies and practices by households and businesses under different types of market interventions. The project is led by the CSIRO, with Swinburne as a research partner and the NSW Office of Environment and Heritage as the industry partner.

Given the paucity of the media research (including social media) on sustainability, energy efficiency and home renovations in Australia, this is an exploratory research project (but see Hulse et al. 2015; Podkalicka et al.

2016). It examines the general parameters of social media conversations and engagement broadly related to sustainable/energy efficient home renovations.

The report proposes a set of implications for formal communicators (including government organisations such as the NSW Office for Environment and Heritage) to consider in environmental media and communication.

## 2. Research approach and methods

While isolated studies have been conducted across disparate fields of research, there is no coherent body of academic literature addressing the impact of networked media and communications on community adoption of energy efficient products in residential sectors. Useful research has been conducted into the role of social media in crisis situations such as the 2009 Queensland and Victorian Floods (Bird, Ling & Haynes 2012; Bruns, Burgess, Crawford, & Shaw 2011), and more generally on how environmental activist organisations use social media to harness public support for their causes (e.g. Katz-Kimchi & Manosevitch 2015). Merrick's (2012) study discusses how Australian blogs and online forums are used to discuss sustainable and simple lifestyles. However, in the area of public engagement with environmental sustainability, scholarship and practice have tended to centre on individualistic behaviour change and information deficit models (Carvalho, van Wessel & Maesele 2017).

The focus on 'consumer behaviour' in analysing the decisions of individuals in response to marketing, market prices and/or government interventions does not adequately explain home renovation practices. Instead, home renovation can be seen in the context of everyday social practices in and around the home (Shove 2010; Maller, Horne, Dalton 2012); consumption (including shopping) is constituted as part of the social networks and cultural contexts that influence people's aspirations and consumer decisions (Miller 1998), including when renovating home.

### Approach

This research draws on cultural and media studies to explore how social media is used to engage people in communication and information sharing around the broadly defined topic of home renovations and environmental sustainability in Australia's changing media landscape. This differs from top-down approaches that seek to change people's behaviours through information, education, and regulation.

While focusing on social media use, this research component considers communication as 'constitutive practice' – not merely 'a matter of transmission of messages' (Carvalho, van Wessel, & Maesele 2017).

The key elements of this research (see also Podkalicka et al. 2016) are:

- a **media ecology framework** – with a focus on examining communication between official organisations, intermediaries and everyday users – as well as informal communication amongst everyday users, especially through digital and social media;
- the concept of **'everyday practice'** – this draws attention not only to how goods are acquired, but also how they are integrated into routine, everyday practices based on cultural norms, skills and materials (Shove, Pantzar, & Watson, 2012). In relation to improving energy efficiency, it is necessary to consider 'how meanings and practices (...) fall into the realm of the taken for granted, and how they change' (Shove 2003: 396);
- **social networks** – a focus on the relationships that people use and develop in trying to improve their homes, both via family, friends, colleagues and via intermediaries such as builders, tradespeople, retailers and others. Here, the interest centres on social media platforms such as Facebook and Twitter, which are used as popular platforms for communication and information exchange between social networks and online communities with shared interests (see Merrick 2012 on online green forums).
- **social networking sites** – a focus on developing a general understanding of patterns of activity and engagement in the so-called 'Australian Twittersphere' (Burgess & Bruns, 2012), and also in and through selected Facebook pages. This is essential to understanding the broader contours of communication networks related to home renovation and sustainability. Also, platforms such as Facebook have been successfully used to draw users' attention to specific social issues, including environmental campaigns, so there are lessons to draw from that experience (Katz-Kimchi & Manosevitch, 2015).

An understanding of people's actual media practices and sites of public engagement is critical for developing communication strategies geared towards improving energy efficiency in the residential sector based on a 'pull' rather than 'push' approach. This approach is part of a related research project on home renovations and media that this research builds on and extends (Hulse et al. 2015; Podkalicka et al. 2016).

## Methods

This social media research follows computational methods associated with the 'Big Social Data' approaches in media and communication research.

Social media data made available through APIs (Twitter) or scraped from digital platforms (Facebook pages) is accessed and analysed to understand 'the formation and dynamics of interest- and issues-based publics' (Burgess & Bruns 2012).

This research follows the developed methodology to 'mapping online publics' (Burgess & Bruns 2012) through new technical infrastructure called TrISMA (Tracking Infrastructure for Social Media Analysis), developed by a consortium of Australian universities (including Swinburne University) and the National Library of Australia (see Appendix for details). TrISMA enables access, storage and analysis of public social media communication by Australians at large scale.

The advantage of using TrISMA, as demonstrated in this report, is the opportunity to compare activity and interaction patterns across various accounts.

## Analysis

The analysis for this research covers two of the main social media platforms: Twitter and Facebook. The two platforms have attracted much research interest – not least because Twitter in particular offers relatively convenient access to social media data for analysis, with the majority of Twitter profiles set as public profiles (Burgess & Bruns 2012); while many Facebook pages are public profiles created for businesses, organisations or public figures. The research has combined quantitative analyses to identify:

- general actions of Twitter users on the topic of sustainability and home renovations (especially focused on the use of hashtags);
- the volume of Twitter and Facebook page activity by identified selected intermediaries/accounts;
- the prevalence of hashtags, keywords and mentions by identified selected intermediaries (Twitter);
- the frequency of keywords by identified selected organisations (Facebook pages);
- the 'high-engagement' accounts in the Australian Twittersphere, and separately Facebook pages, to better understand the nature of their social media activity and engagement with users.

The analysis follows standard categories and types of social media activity represented in:

- Twitter: original tweets, retweets, @replies, URL sharing;
- Facebook pages: posts, types of posts, comments, 'likes', 'shares'.

As such, the analysis emphasises 'more informational modes of communication, rather than the ephemeral, affective, or ambly intimate uses' (Burgess & Bruns, 2012).

## The selection of accounts by key intermediaries

A key part of the research was to analyse Twitter and Facebook page activity by identified key selected actors and intermediaries in the home renovation and sustainability sector, particularly those who had surfaced in the previous research as influential (Podkalicka et al. 2016). The broad selection approach was supported by the recognition that ideas and messages for home renovations and energy efficiency can be delivered, in various ways, by a range of actors, including formal and informal communicators (Sleeth-Keppler, Perkowitz & Speiser 2017). This is not necessarily occurring in equal measure across the selected intermediaries, given the diverse sample – just that the communicative system that ‘constitutes practices’ (Carvalho, van Wessel, & Maesele 2017) as related to energy efficient home renovations consists of a range of actors with criss-crossing influences and diverse emphases. The communicators include not only formal actors, such as government or not-for-profit environmental organisations, but also retail and mainstream media with track record of consumer/public engagement around home-making and home renovation (see also Podkalicka et al. 2016).

The selected intermediaries are clustered into the following categories:

- celebrities associated with popular TV renovation programs;
- government (examples of Commonwealth, state and local councils);
- industry organisations (for example ASBEC);
- building industry/trades (for example Hi Pages);
- magazines (for example general real estate such Domain.com.au, and green-focused publications such as Sanctuary);
- not-for-profit organisations and think-tanks (for example the Alternative Technology Association);
- retailers (Mitre 10);
- mainstream media through general lifestyle TV shows such as *Better Homes and Gardens*; or renovation-focused shows such as *The Block*.

The research has also explored the key ‘high-engagement’ accounts to identify their key characteristics such as the use of hashtags, keywords or types of posts.

Given the technical characteristics of the TrISMA infrastructure, the analysis focuses on Twitter accounts identified as Australian. The Facebook page research uses different technical tools, and therefore it includes –

for comparison purposes – non-Australian accounts such as high-profile environmental activist groups and public figures (for example Al Gore).

For this research update and extension, the Twitter and Facebook page analysis was conducted in April-May 2017, and includes additional accounts such as well-established environmental organisations (WWF) or public figures/celebrities associated with the renovation show *The Block*, and popular TV programs such as *House Rules* and *The Living Room*.

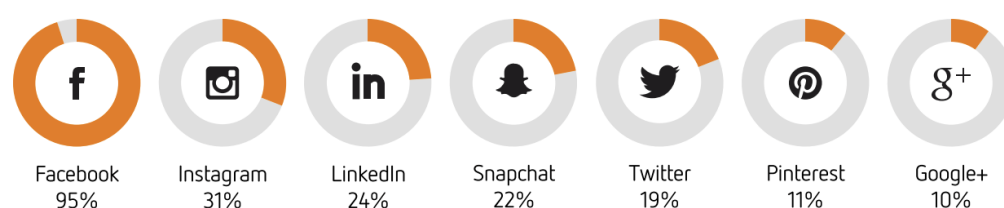
### 3. Social media research – 2017 update

#### Background

Social media has a widespread presence in Australians' everyday life. According to the Sensis Social Media Report, 69% of internet users use social networking sites, with Twitter reaching 19% of them, and Facebook 95% (Sensis, 2016).

Figure 1: The penetration of social networking sites in Australia in 2016.

#### Social networking sites used this year



Source: 2016 Sensis Social Media Report, page 7.

#### Key trends – snapshot

Twitter users now appear to be following a lot more accounts than was previously the case, with the average number increasing by nearly 200 to 315. Frequency of use has risen substantially too, with 47% of users tweeting most days compared to 22% last year and 16% in 2014. The proportion who never tweet has also fallen markedly to 8%, down from 31% in 2014 and 16% last year (pp. 28).

Australians are now spending more than half a day per week (12.5 hours) on Facebook alone, up four hours from 2015 (pp. 3).

Nearly everyone uses social media at home, with other locations not uncommon. 39% access social media while watching TV and this happens across a wide variety of program types. 28% discuss TV programs on social media while watching them and they feel this increases their enjoyment of those programs (pp. 4).

Source: 2016 Sensis Social Media Report.

#### Tweets related to 'sustainability' and 'renovation'

In examining the general communication activity on topics of relevance to energy efficient home renovations, Twitter users appeared to mention 'sustainability' as a keyword more frequently than they mentioned 'renovation'. However it must be noted that upon closer reading of tweets, 'sustainability' in some cases referred to 'sustainability' in relation to the economy. It is interesting to note that the number of mentions for both terms in original tweets almost doubled between 2016 and 2017. This increase might to some extent also be explained by TrISMA's expanded technical capacity, which means it now follows more Australian Twitter accounts than it did previously.

The number of replies to tweets containing those terms was considerably less, indicating, at face value, relatively low levels of direct engagement, as shown in Table 1. However, the media studies research recognises that social media activity often 'follows a "long tail" distribution' – that is, with many users 'contributing only occasionally' (Bruns, 2015). Another recognised online practice has become known as 'lurking' – meaning reading and/or following rather than

actively contributing (Schlosser 2005). For this reason, it cannot be claimed that tweets that fail to attract replies are being completely ignored.

**Table 1: Mentions of the ‘reno’ and ‘sustainability’ terms on Twitter**

	2016	2017	2017	2017
	Mentions	Mentions	Tweets containing the terms and receiving replies to them	Total # of replies
Sustainability	487,960	945,190	18,025	23,481
Renovation	239,071	446,561	16,708	20,247

Source: Original analysis of Twitter from TrISMA.

As Table 1 shows, there were over 18k tweets containing the term ‘sustainability’ that received replies. The overall number of replies to these tweets was over 23k, meaning that one ‘sustainability’ tweet would have received more than one reply.

### Hashtags

Hashtags are devices for marking and connecting to particular themes and conversations in the social media space.

Research has successfully analysed the use of hashtags to identify types of conversations and communities assembling around them. However, it is important to acknowledge the limitations of this approach given that anyone can produce a new hashtag (Bruns and Burgess 2011; Highfield & Leaver 2015). In this research, the selection of hashtags was determined through the preliminary analysis of the selected key players’ tweets and users’ tweets that appeared common at the time; and calculated to include both lower and upper cases for hashtag searches. However, the search excludes tweets with hashtags containing letters or words preceding ‘reno’, i.e. that may still pertain to the conversation about renovations and sustainability but are not included on the pre-determined list.

When we look at tweets directed at hashtags relevant to the sustainable renovation market, a somewhat different picture emerges. Table 2 illustrates the relative popularity of Twitter communication connected to the ‘home’ hashtag conversation, and, interestingly, ‘solar’. #solar – when excluding accounts starting with solar in the name, the total number of #solar is still high – and comes up to 215,000.

It is clear that the terms ‘low carbon’ and ‘green energy’ are not widely used in the Australian Twittersphere, whereas the more general terms ‘sustainability’ and ‘environment’ are. Overall, as with the number of tweets containing the words ‘sustainability’ and separately ‘renovation’, the identified selected hashtags roughly doubled between 2016 and 2017. However, as mentioned earlier, this might also be explained by TrISMA’s expanded technical capacity during this period.

Table 2: Selected hashtags related to the sustainable renovation market

	<b>Jul-16</b>	<b>May-17</b>
#home	534 825	1 060 320
#solar	145 127	301 726
#sustainability	108 035	229 768
#environment	101 398	195 200
#renewables	46 884	114 367
#reno	31 304	59 336
#thrift	7 553	13 133
#ecofriendly	4 666	12 420
#savemoney	4 473	9 989
#homedesign	2 269	5 536
#greenenergy	2 506	5 465
#saveenergy	1 502	2 409
#lowcarbon	1 094	2 566

Additional hashtag search:

	15-May-17
#CleanEnergy	23,686
#RenewableEnergy	58,556
#lifestyle	132,139
#Energy	231,730
#Climatechange	513,215

Source: Original analysis of Twitter from TrISMA.

### Top accounts mentioning 'reno' in the Australian Twittersphere

The analysis indicates that key Twitter accounts mentioning the term 'reno' are accounts associated with TV-based renovation shows: @RenoRumble and @TheBlock, including active participation by the @Channel9 account that hosts the shows and mostly retweets and/or mentions @RenoRumble and @TheBlock.

The next tranche of accounts frequently tweeting the term 'reno' pertains to home improvement and DIY blogs, sharing information on a range of topics related to renovations, including renovation tips, recent market research on renovations or celebrity news featuring home renos. Some users in this group are quite inclusive in approach, referring others to stories beyond the bounds of DIY or home renovation, for example, gardening or decorating.

Within the top 10 accounts for tweeting 'reno' is also @insideoutmag, a magazine available in online and hard copy shares tips on home make-overs, advertises products and materials for styling and decorating, advises against common renovation mistakes, and directs users to events featuring experts from other companies.

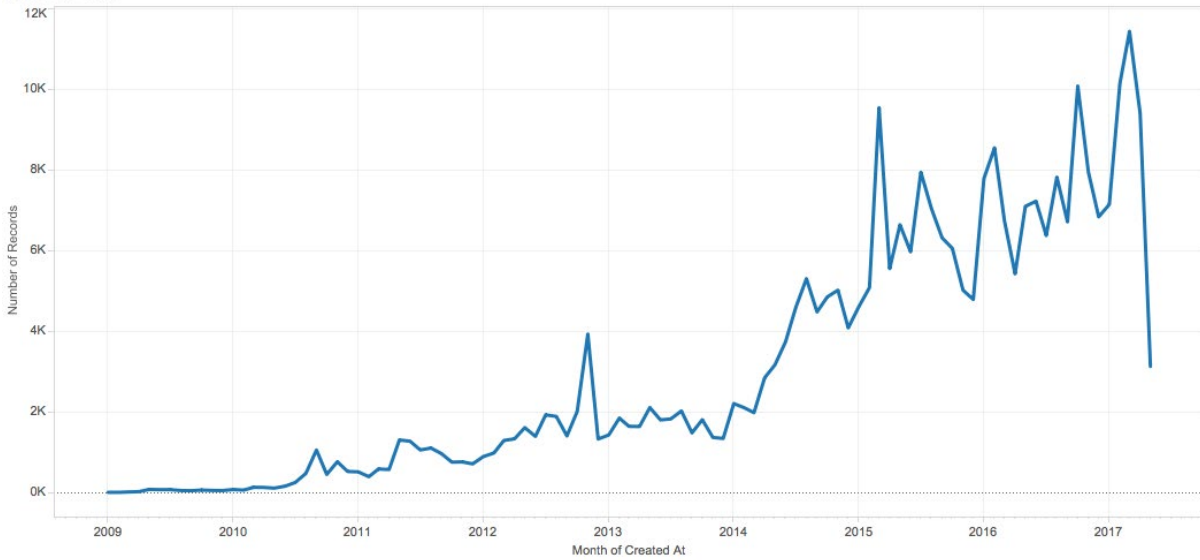
### Close up on #solar

A temporal analysis of the data shows the growing visibility of #solar in the Australian Twittersphere, although with fluctuations over time. The represented dip in tweeting activity around #solar reflects the fact that no tweets from the most recent months have been made available for analysis – not a true reflection of the situation.



Figure 2: Tweeting #solar over time.

#solar vs time



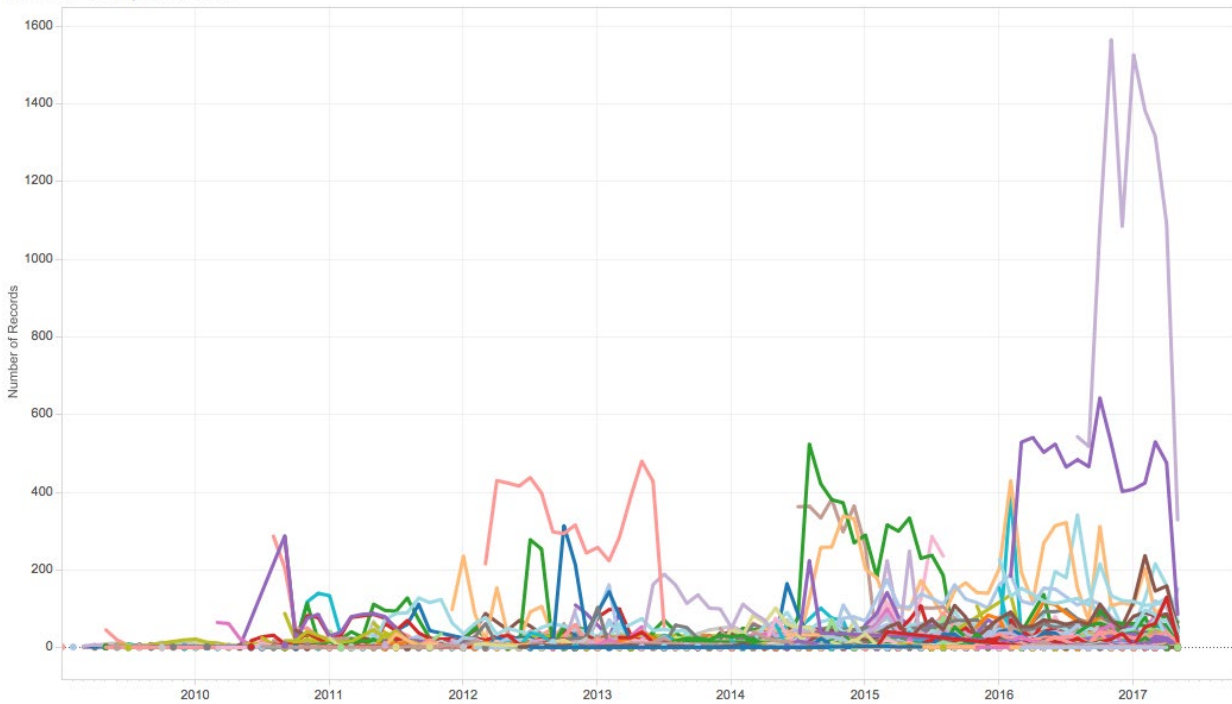
Original analysis from customised TrISMA dataset search.

The analysis of lead accounts tweeting #solar indicates that very many of them are SMEs. Many have been active only intermittently, demonstrating well the 'long-tail' characteristics of Twitter activity (Figure 3, below).

Energy Renaissance (@NRGrenaissance) is a lead account committed to the promotion of renewable energy in Australia. Its main activity involves retweeting climate change-related information – with a substantial peak in July 2017.

Figure 3: Twitter accounts contributing to #solar over time.

#solar vs time per account



Original analysis from customised TrISMA dataset search.



## Twitter activity by identified selected intermediaries

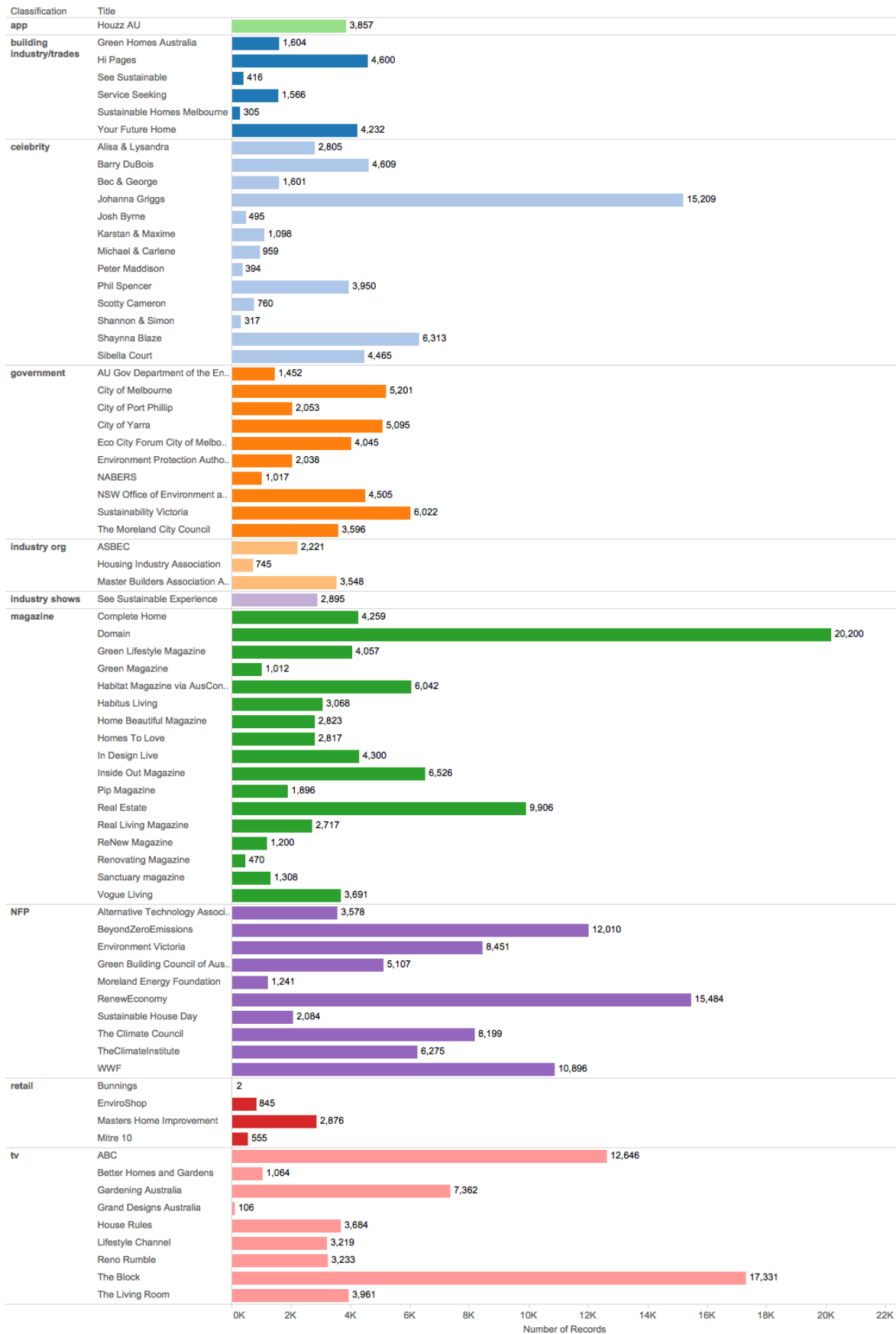
A basic way to ascertain Twitter productivity by the selected intermediaries is to compare the number of tweets sent from their account. As Figure 4 shows (below), property news outlet/magazine @Domaincomau is the lead account, with over 20,000 tweets. @TheBlock by the long-running reality TV renovation show, is also active, with over 17,000 tweets, followed, somewhat surprisingly, by @renew\_economy. Unlike well-established media outlets such as Domain or The NSW Office of Environment and Heritage's @OEHMedia is roughly on par with the selected Melbourne-based local councils (for example City of Yarra, City of Melbourne), Sustainability Victoria, and City of Melbourne's @ecocityforum, which promotes itself as a forum for 'the latest sustainability news from the City of Melbourne', inviting questions from users.

In the analysis of Figure 4, the included accounts' creation dates must be taken into account to interpret their overall productivity over time. For example, @Domaincomau was created in 2009 while @renew\_economy in 2012. This means that @renew\_economy has emerged as one of the leading accounts in our sample in a relatively shorter time than @Domaincomau.

RenewEconomy is an independent not-for-profit run website focused specifically on Australia's transition into a low-carbon economy. In many ways, @renew\_economy demonstrates the lower costs of using social media, often keenly embraced by not-for-profits or environmental activist organisations – such as the Australian Beyond Zero Emissions think-tank, or the international World Wide Fund for Nature (which has an Australian branch that this analysis tracked). Directly behind them is the account @JohGriggs7 by public figure/celebrity Johanna Griggs, who hosts Channel 7's *House Rules* and *Better Homes and Gardens*.

Figure 4: Twitter activity by selected intermediaries.

Tweets per known Reno account/class



Original analysis from customised TrISMA dataset search.

## Tweets containing links to other sites

Twitter is an important platform for information dissemination. But to what extent does it connect users with other accounts and content sites? An indication of this can be gained from an analysis of the percentage of tweets sent out from the selected accounts containing URLs.

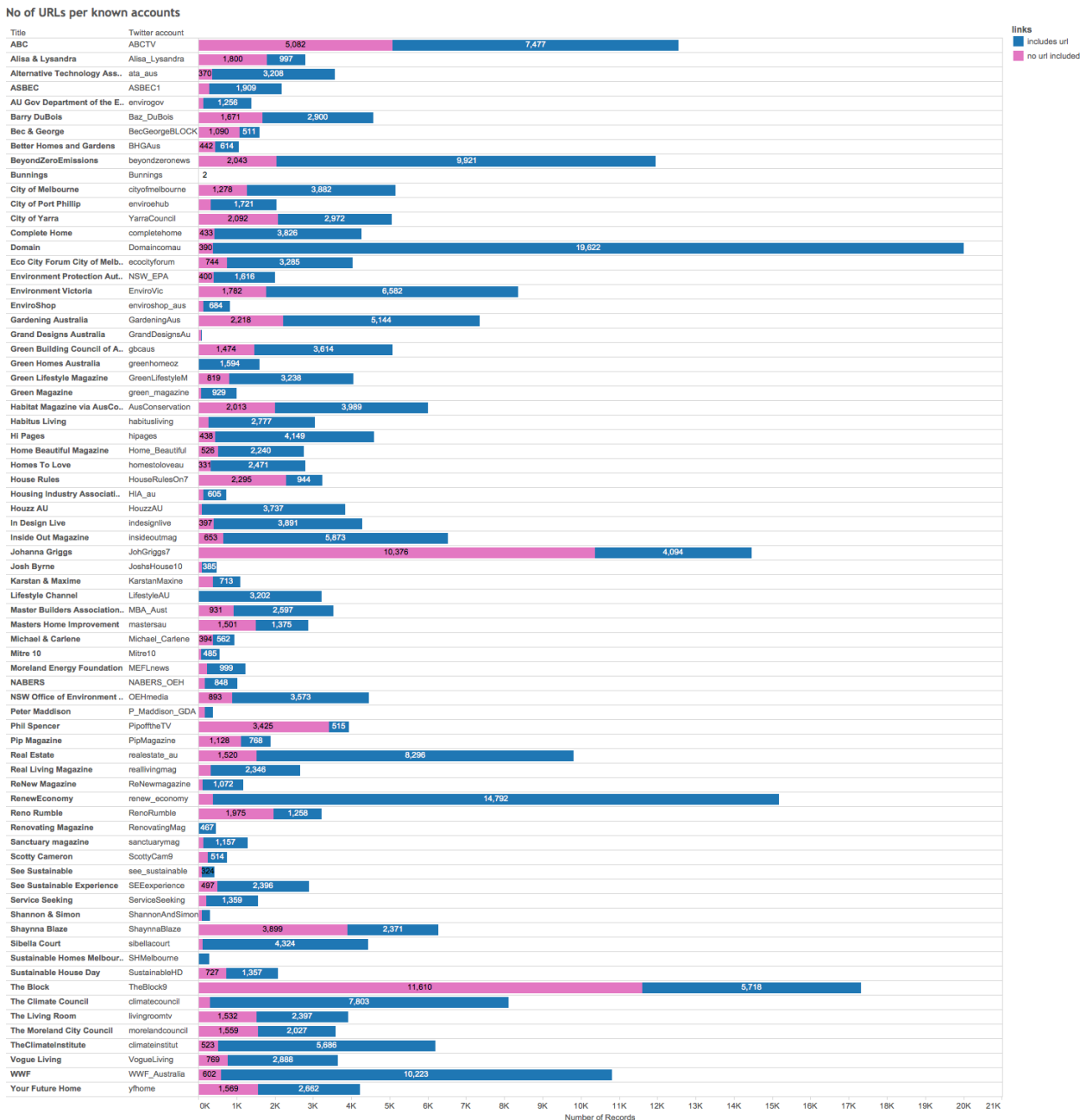
The representation with the URL content suggests to what extent tweets contain links to photos, video, and other websites or platforms such as YouTube. The results shown in Figure 5 indicate the high percentage of URLs – with a notable exception of @TheBlock (5,718 tweets with a URL versus 11,610 without) and @JohGriggs7 (4,094 tweets with a URL versus 10,378 without). @HouseRules has over twice as many tweets without URLs than with; and TV personality @ShaynnaBlaze's tweets without URLs outweigh those with URLs.

The analysis of the URL distribution coupled with frequency count of mentions (i.e. words starting with @) suggests that the Twitter accounts associated with media organisations such as @TheBlock, and TV personalities such as Johanna Griggs (host on *Better Homes and Gardens Australia* and *House Rule*) or

Shaynna Blaze (a judge on *The Block* and Foxtel's *Selling Houses Australia*), do connect users to other accounts via @mentions – but they provide fewer links to other online sites than tweets with URLs (see Figure 5, below). The analysis of @mentions reveals they largely refer to the related accounts such as @houseruleson7 for Johanna Griggs, @shaynablaze and @theblock9 for Shaynna Blaze, or @renorumble and @channel9 for The Block account. This means a lot of their Twitter conversations are built around themselves and their associates.

By contrast, in terms of use of URLs, Twitter accounts by Domain.com, as well as intermediaries in the not-for-profit group (such as BeyondZeroEmmission, WWF Australia or RenewEconomy) do include a high proportion of tweets with links to other sites, but the characteristics of this linkages differ. Perhaps unsurprisingly, @Domaincomau directs users to the Domain's well-established website, [www.domain.com.au](http://www.domain.com.au); whereas @beyondzeronews links users to information sources that appear to be more diverse, including stories from newspapers such as The Economic Times, online technology articles on Gizmodo, or stories retweeted from related environmental organisations such as ClimateWorks Aus or RenewEconomy.

Figure 5: Number of URLs in tweets by selected intermediaries.



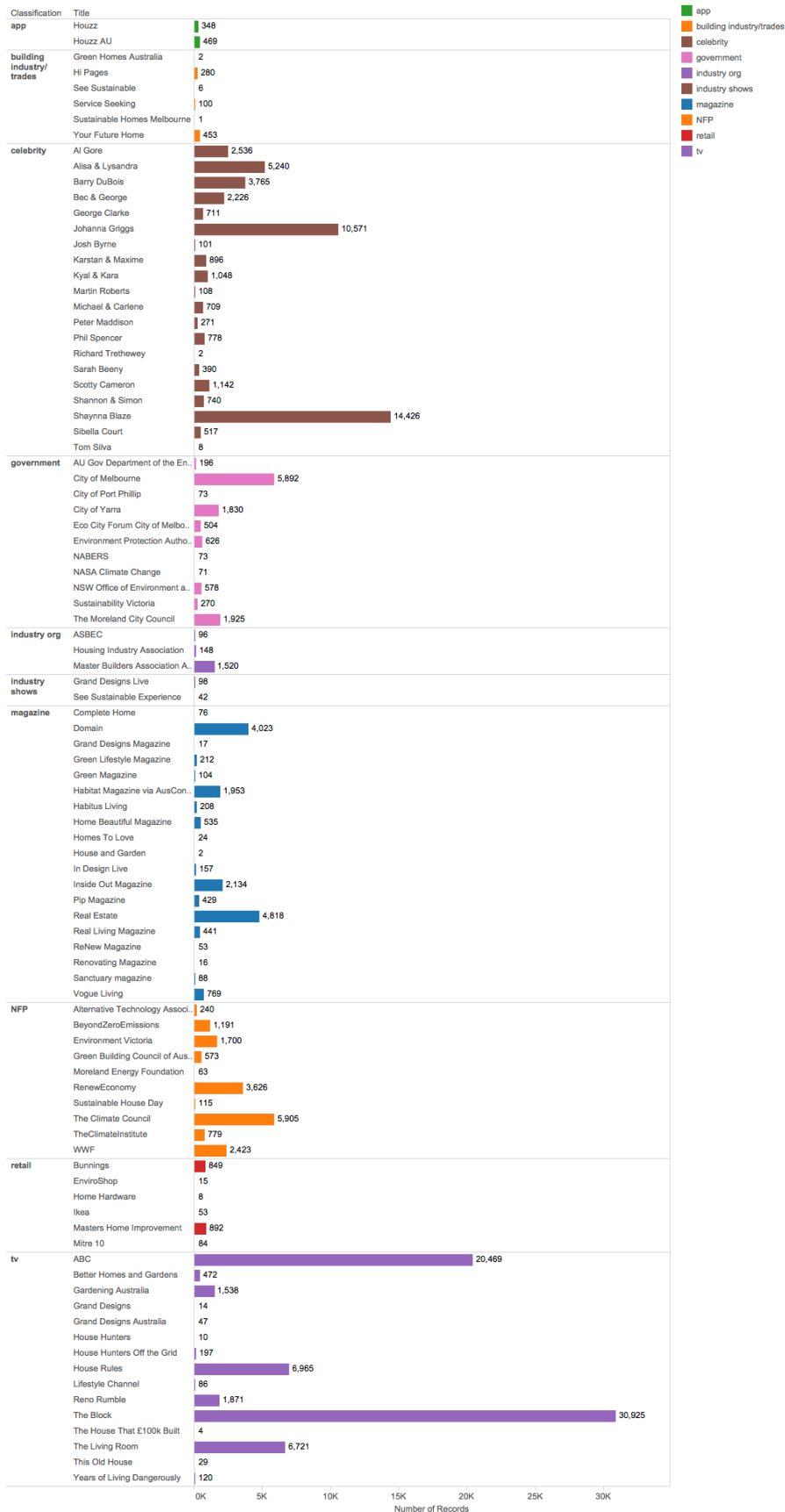
Original analysis from customised TriSMA dataset search.

### Engagement: replies to tweets

In interpreting social media, it is important to consider the extent to which original tweets attract 'replies' as an approximation of more direct engagement. Responding to a tweet is arguably a stronger level of engagement than 'retweeting' or clicking on the link.

Figure 6: Number of replies to tweets by selected intermediaries.

Replies to known Reno account/class



Original analysis from customised TrISMA dataset search.

Using this measure, we have found a comparatively high percentage of replies to media organisations, with @TheBlock leading with roughly the ratio of 1 tweet to 2 replies (17,328 tweets to 30,925 replies). This is similar to the @ABC account (12,559 tweets to 20,469 replies). It is important to note, however, that @ABC covers all programs by the public broadcaster, whereas @TheBlock is of course related only to the reality TV show *The Block*. This is why we selected Shaynna Blaze's account for a closer analysis.

Other TV programs, such *The Living Room* and Channel 7's *House Rules*, as well as public figures/celebrities, also attract a substantial amount of replies to their accounts compared to the intermediaries in the remaining groups. As both accounts were not on the TrISMA original lists of tracked accounts, the number of tweets from @livingroomtv and @HouseRulesOn7 would be higher than accessed through TrISMA (see Appendix for more detail about TrISMA's technical capacity). *The Block*'s judge Shaynna Blaze leading the group (with 14,426 replies to 6,270 tweets), followed by *Better Homes and Gardens*' and *House Rules*' presenter – Johanna Griggs (with 10,571 replies).

Replies for the government account group are comparatively lower, with the NSW Office and Heritage and Environment receiving 578 tweets, and the City of Melbourne in a clear lead with 5,892 replies. It is interesting to observe that the City of Melbourne also recorded the most likes for a single message based on the Facebook page analysis of the sample.

### High-engagement accounts:

@TheBlock and @ShaynnaBlaze

What makes @TheBlock, and separately @ShaynnaBlaze, highly visible Twitter accounts?

@ShaynnaBlaze

- a large percentage of replies (14,426) to 6,270 tweets
- the ratio of original tweets versus retweets – 4,952 to 1,361
- tweets containing a URL – 2,371 out of 6,270 tweets
- a relatively small contribution to hashtag streams – with #theblock (196); #sellinghousesaus (177); #deadlinedesign (108) as top hashtags – compared to @TheBlock with over 9k tweets containing #theblock

The most popular @mentions from @ShaynnaBlaze account are:

@ShaynnaBlaze	(562);	@theblock9	(411);
@andrewtwinter	(342);	@lifestyletv	(311);
@charlesalbone			

This means that a lot of conversations from @ShaynnaBlaze is built around her media celebrity status, connecting to the shows on which she is a judge, to her co-judges, and to the broadcasters that screen the shows.

@TheBlock

- a large amount of replies (30,925) to 17,328 tweets
- the ratio of original tweets versus retweets – 14,426 to 3,071
- tweets containing a URL – 5,718 out of 17,328
- a high use of hashtags, especially #theblock (9,174), followed by #9theblock (2,797), and #roomreveals (1,416)

The most popular @mentions from @TheBlock account are:

@renorumble (825); @channel9 (679); @theblock9 (438)

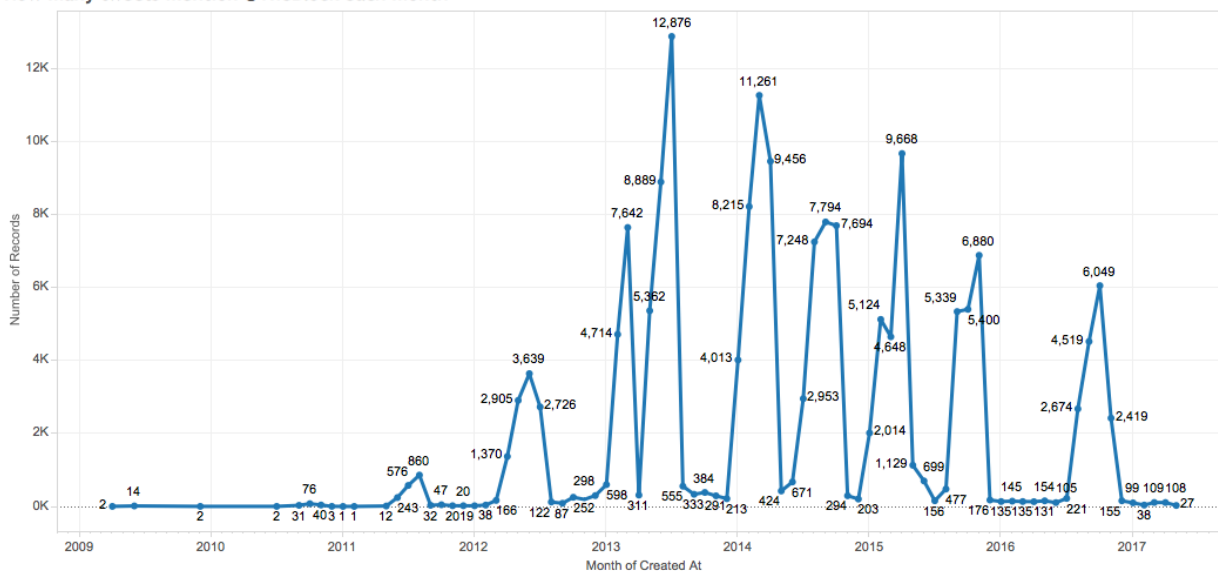
The prevalence of hashtags and mentions related to the show itself, its sister program *Reno Rumble* and also the host broadcaster, Channel 9, indicates a relatively self-referential and indeed often cross-promotional activity.

@TheBlock was identified as a lead account contributing to the conversations on the topic of renovations through the highest number of tweets mentioning 'reno' and #reno. However, upon a closer reading, many of these tweets related to @RenoRumble, another Channel 9 renovation show. However, these advertising tweets produced little engagement through users' replies.

User engagement for @TheBlock appears to be built around the popularity of the flagship program, with tactics such as countdown to a new season, home reveal or grand finale. It is perhaps possible to map Twitter users' engagement to the televisual cycles of the program, with the broadcast seasons, and perhaps also televisual events such as Logie awards – including the lead-up to the April 2017 awards, when *The Block* presenters Scotty Cam and Shelley Craft won the Silver Logie for Best Reality program.

Figure 7: The distribution of mentions of @TheBlock over time.

How many tweets mention @TheBlock each month



Original analysis of customised TrSIMA dataset search.

Figure 7 shows the numbers and distribution of tweets mentioning @TheBlock over time.

The social networks of television personalities associated with the program (including the program judges such as Shayna Blaze, as well as current or former contestants) expand the visibility of @TheBlock through their retweets and @mentions of The Block. For example, the winners of The Block Sky High season, @Alisa\_Lysandra (with almost 2800 tweets receiving almost twice as many replies – 5,240) or @BecGeorgeBLOCK (1600 tweets with 2226 replies), and will also, at some point, retweet and/or mention @TheBlock, extending and amplifying the visibility of the show.

### Analysis of Facebook pages per selected accounts

Facebook is a dominant social media platform for Australian users of social networking sites, with users spending an increasing amount of time on it. It is highly valued by users because of the community connections and engagement it offers (Sensis, 2016: 4).

Facebook was mentioned by home renovators and building practitioners in the related RP 3021 research as a means of:

- sharing experiences of home renovations with friends and family (for example by circulating photos);
- following specific interests and topics (for example the tiny house movement in the UK);

- accessing specific information, tips or recommendations (for example when looking for trusted tradies in a local area).

Facebook pages are public profiles on facebook that can be set up by businesses, organisations or public figures.

This analysis of facebook pages focuses on elements of (i) page activity (including types of posts), and (ii) user engagement with facebook pages by identified selected intermediaries.

It's important to reiterate that facebook page data for most of the tracked accounts was collected between April 2016 and April 2017. The date when the account was added to the TrSIMA list is included in Figure 8.

Figure 8 reveals that the Facebook pages of two intermediaries are particularly active. *The Block* leads, with 5,531 posts, followed by Channel 7's *Better Homes and Gardens*, with 2,894. @BHGAus is also associated with @mybhg that relates to the popular magazine publication of the same name, and online website: <http://www.bhg.com/>.

It is interesting to note at the time of analysis that the two real estate news outlets/magazines have an almost identical number of posts – realestate.com.au with 1,536 posts, and Domain.com.au with 1,518.

Another aspect of the facebook analysis was the distribution of various types of posts from the intermediaries in our sample. The infrastructure allowed six standard categories:

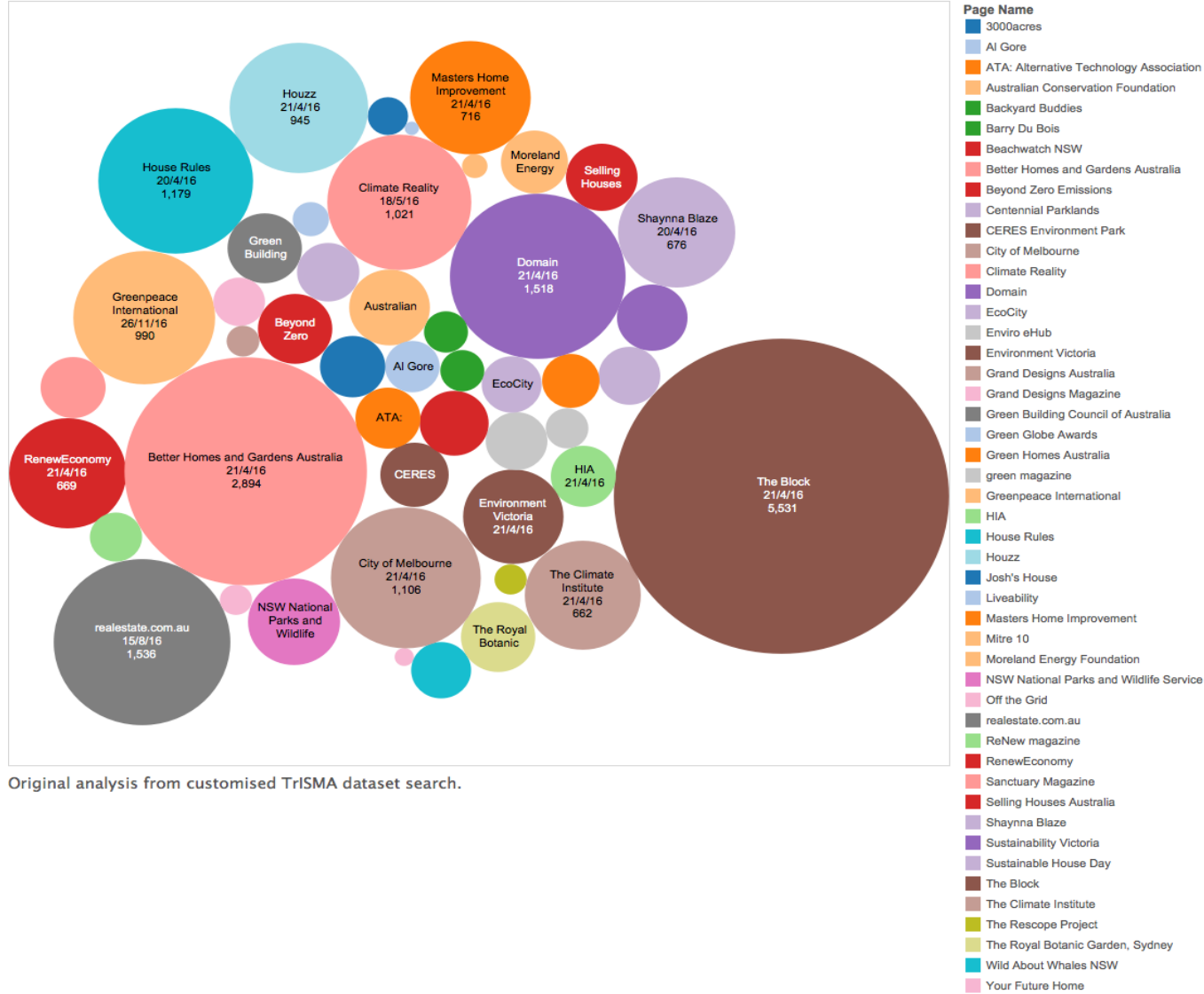
- Event = event created on FB page; includes date, location;
- Link = includes link to external websites;
- Offer = offer created on FB page; can be redeemed by clicking on URL or in store;
- Photo = post includes an image;
- Status = opening message / post;
- Video = post includes a video.

Using these categories, it is clear that Links and Status posts predominate, followed by visual material (photos and videos), as shown in Figure 9. When we look at the distribution of post types, it clearly varies quite substantially across the selected intermediaries. *The Block* and *House Rules* tend to favour status posts (3,956 versus 1,032 respectively); while the identified high engagement pages, *Better Homes and Gardens* and *Domain*, focus primarily on links, followed by photos and videos. The high use of links suggests that *Better Homes and Gardens* and *Domain* direct people to sites outside of their Facebook pages.



Figure 8: Number of Facebook posts by selected intermediaries.

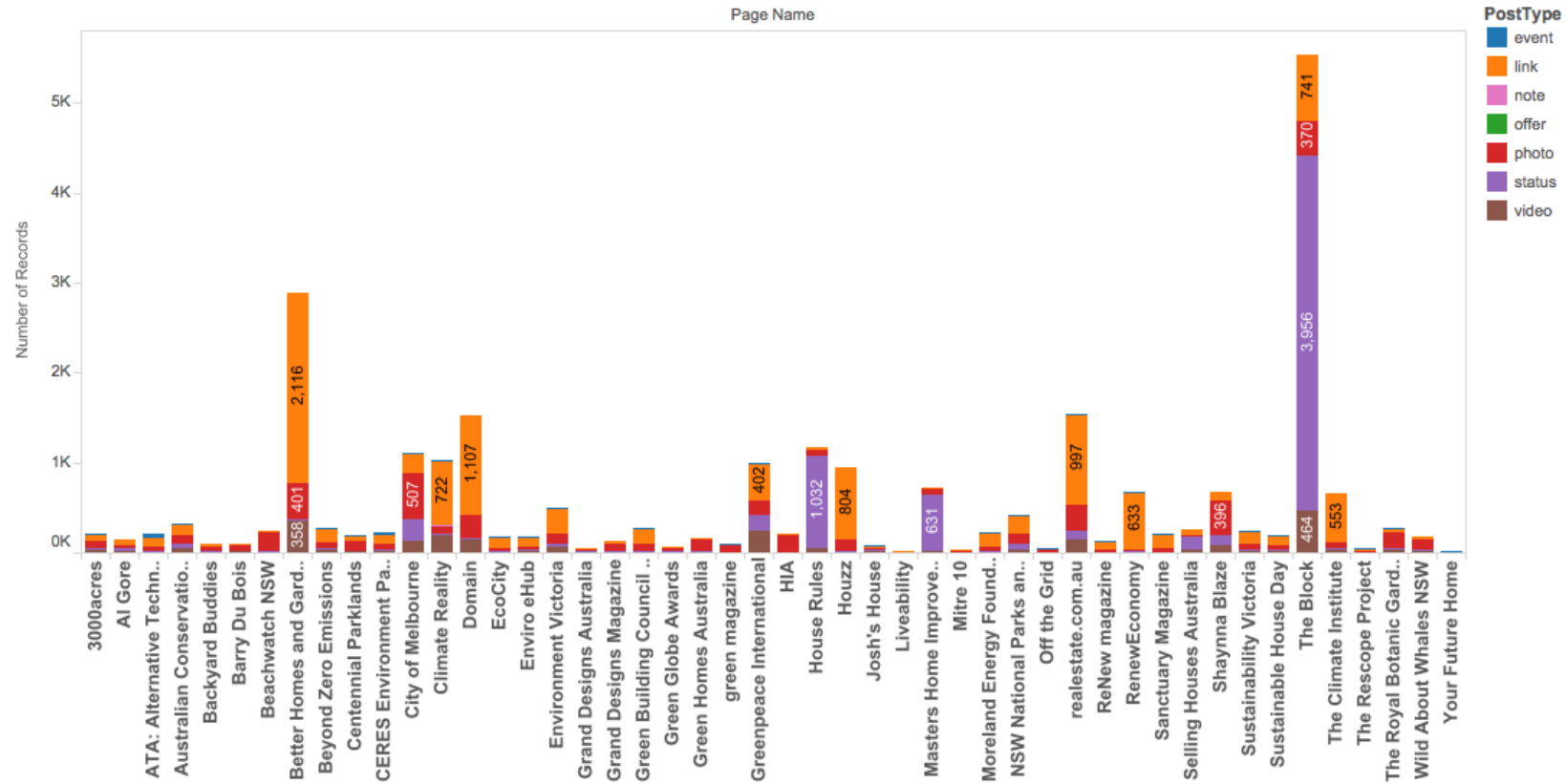
Num post per accounts (bubbles)



Original analysis from customised TrISMA dataset search.

Figure 9: The distribution of post types by selected intermediaries.

post types per page



Original analysis from customised TRISMA dataset search.

Parallel to the Twitter analysis, to gauge the engagement level by the specific page we look at the number of comments posted by others to the specific facebook page. As demonstrated in Figure 10, a somewhat different picture to the Twitter activity emerges. The most engaged pages are the popular TV lifestyle show *Better Homes and Gardens* (with 85,086 comments), followed by Domain.com (77,900 comments).

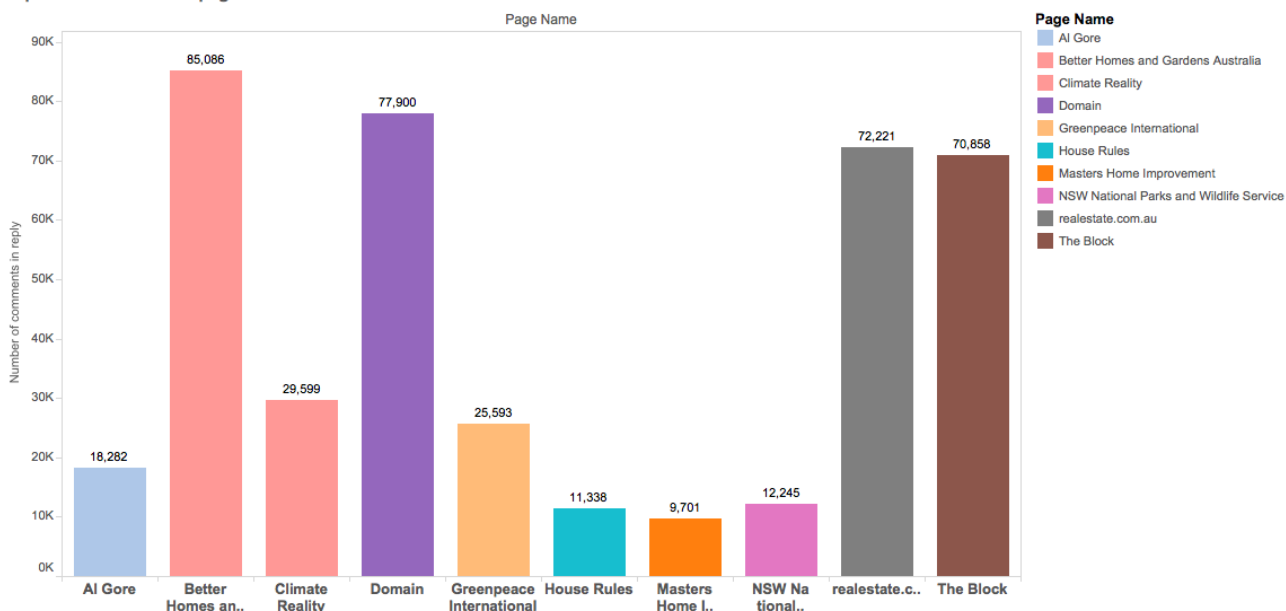
In the Twittersphere, the number of tweets and replies to tweets by *Better Homes and Gardens* was low, which compared to the Facebook page analysis suggests the choice of facebook as an engagement platform over

Twitter. Domain, on the other hand, has an active Twitter account, topping our list of the intermediaries for posted tweets but receiving a proportionally low number of replies to its tweet (over 4k replies to over 20k tweets).

An interesting finding from the facebook comparison is strong engagement on the realestate.com facebook page (72,221 comments), as well as NSW National Parks and Wildlife (with 12,245 comments), ahead of *House Rules* (11,338) and edging close to *AI Gore* (18,283).

Figure 10: Top Facebook pages for comments

Top commented on FB pages

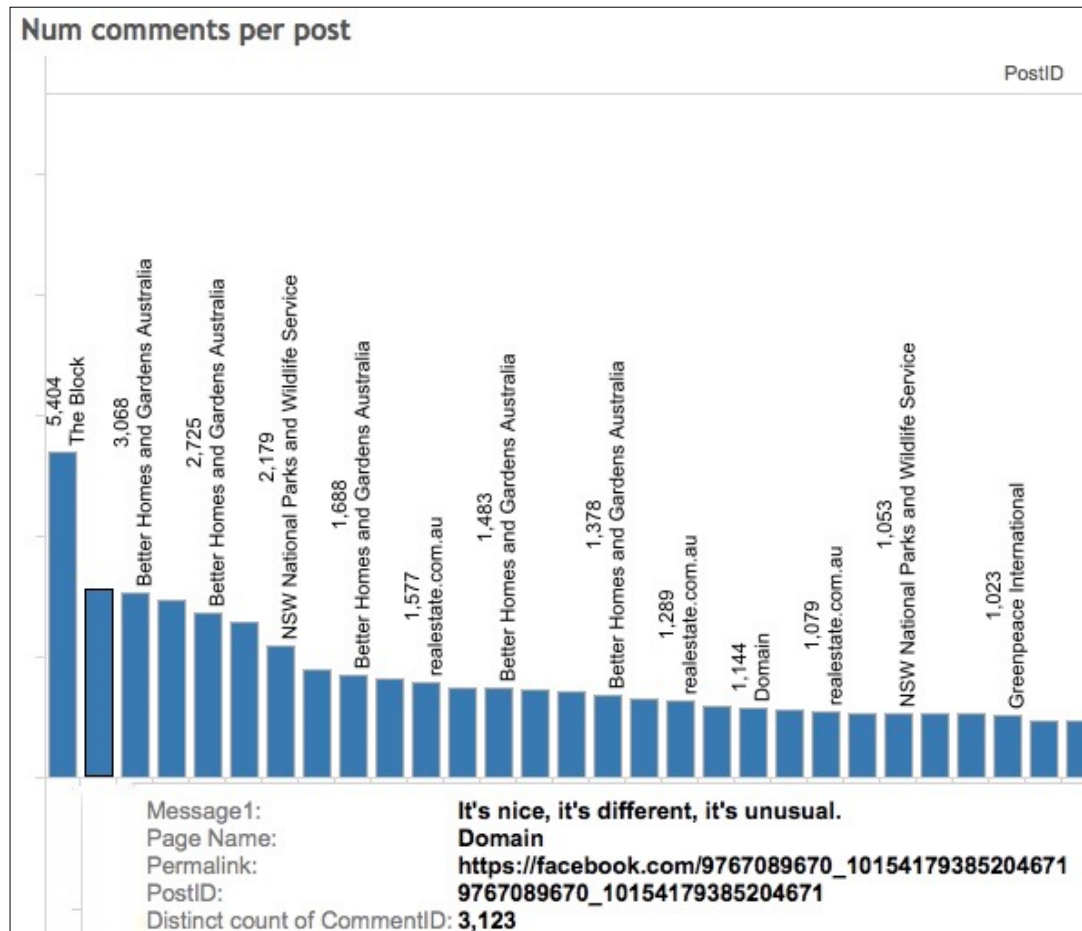


Original analysis from customised TRISMA data set search.

When we look further into individual posts that received the highest number of comments, we find that *The*

*Block's* post leads with 5,404 comments, followed by Domain and *Better Homes and Gardens* (Figure 10).

Figure 11: Individual posts with the largest number of comments.



Source: Original analysis from customised TrISMA dataset search.

time since April 2016 when the BHGAus was added for tracking, 1,803 posts with links have attracted 43,229 comments

## 'High-engagement' Facebook pages

*Better Homes and Gardens* Facebook page – @BHGAus, <https://www.facebook.com/BHGAus/>

Highly engaged facebook page evidenced by:

As of April 2017, it had the highest number of comments to its page of all monitored pages – 85,086

The page is active with 2,894 posts – second only to *The Block* (with 5,531).

The prevalence of posts with links (2,116), followed by a fairly even distribution of photos and videos (401 to 348 respectively). It's important to note that only posts by the page administrators are featured on the page (see Figure 12), which means it has a different setting to *TheBlock's* page where people are allowed to post.

@BHGAus page has the highest number of distinct accounts posting comments (in the sample) - 52,166

Top individual posts attracting most comments in the period we followed (see Figure 11) was a countdown to the 2016 Christmas period; as was its second ('Yep. It's true!'); with its third most commented post inviting user interaction ('We're LIVE! Ask Fast Ed ANYTHING. Ed is answering all your Christmas cooking questions right now. Ask them below. Plus let us know where you're watching from!').

'Christmas' comes up also as one of the frequently used words in posts by BHGAus, along with 'recipe', 'food' or 'make' (see Figure 13). Note: the word frequency analysis excludes stop words contained in links such as 'external', 'safe', 'fbcdn', etc.

Figure 12: Word cloud for @BHGAus posts.



- *Better Homes and Gardens* TV show has Twitter and Facebook accounts, but is substantially more active through its Facebook page, with 1,056 tweets registered until May 2017 versus 2,894 facebook page posts authored by the account until April 2017;
- Figure 14 shows the distribution of comments to @BHGAus facebook page, indicating a high engagement with posts including links, and followed by photos and videos. For example, in the

Figure 13: Number and distribution of comments to post types by @BHGAus.

Post Type	Date	Comments	Total
link	21/4/16	1,803	43,229
photo	21/4/16	360	21,553
status	24/10/16	4	45
video	22/4/16	337	20,259

- *Better Homes and Gardens* might not tweet specifically about renovations but from the analysis of its Facebook page it's clear that it refers users to the website [www.bhg.com.au](http://www.bhg.com.au), which has a 'renovating' sub-category, meaning that *Better Homes and Gardens* contributes to the online conversation about renovations. Collectively, its general lifestyle content on the TV show, the associated linked website and facebook page cover a whole range of topics, from styling advice and home renovations through to promoting craft or gardening practices and of course cooking recipes.

Domain.com Facebook page – @domain.com.au  
<https://www.facebook.com/domain.com.au/>

Highly engaged Facebook page evidenced by:

- The second highest number of comments to its page (in the sample) – 77,900
- Overall the page had 1,518 posts – the 4<sup>th</sup> most active, after The Block (with 5,531) *Better Homes and Gardens Australia* (see above), and realestate.com.au (1,536)
- A high percentage of posts with links (1,107 out of all posts), followed by photo and video
- Only posts from administrators are featured on the page, similar to the *Better Homes and Gardens Australia's* Facebook page

- The second highest (after @BHGAus) number of distinct accounts commenting on their page – 44,655
- The second most commented on individual post (in the sample) in the period we followed: over 3k comments to the humorous ad for Kath and Kim's house sale, and directing users to an article on the domain.com.au website (see Figure 11);
- @domain.com.au page features a great deal of posts related to the Australian property market – both regarding house sales in capital cities (especially Sydney and Melbourne) and the hot topic of housing affordability. It posts examples of successful house conversions (e.g. warehouse), creative ways of managing small house space or sharing advice and tips on renovations. For example, via Houzz publication on the domain website: <https://www.domain.com.au/advice/biggest-mistake-four-experts-share-renovation-regrets/>. Post with videos and photos often refer to house auctions – some garnering much attention;
- Word cloud demonstrates 'advice', 'street' and 'million' as frequent in its posts, alongside the predictable words such as 'home', 'auction' or 'property' (Figure 14).

Figure 14: Word cloud for @domain.com.au posts.



- Figure 15 shows the distribution of comments to @domain.com.au, indicating high

engagement with posts including links (42575 comments to 1,021 posts including links)

**Figure 15: Number and distribution of comments to post types by @domain.com.au**

Domain	link	21/4/16	1,021	42,575	42,575
	photo	26/7/16	252	25,462	25,462
	video	23/4/16	142	9,863	9,863

Source: Original analysis from customised TrISMA dataset search.

## 4. Conclusions

This research is an exploratory investigation into the role social media and social networks play in public conversations related to home-making, home renovations and environmental sustainability in Australia. It seeks to offer an alternative to the traditional approaches centred on the so-called 'information deficit' model, which is seen as a barrier to the greater integration of energy efficient products and solutions in the residential sector. Instead, the study focuses on the ways people interact with each other and with a range of the selected intermediaries, drawing attention to existing conversations built around Twitter and Facebook (via Facebook page) use in Australia.

### Key findings and implications

Prior research on media and home renovations has found the mainstream commercial media has a significant influence on shaping the renovation practices of renovators (NSW Office of Environment and Heritage 2014; Podkalicka et al. 2016). This study zoomed in on social media and confirms a strong Twitter and Facebook page productivity and engagement by the accounts associated with the established media organisations and outlets (Domain.com.au) and popular TV shows (*The Block* or *Better Homes and Gardens*). The latter, while representing different TV genres (competition reality versus lifestyle programming), demonstrate how social networking tactics are actively used to help spread their messages and reach larger audiences.

As noted elsewhere (Podkalicka et al. 2016), it is clear that different intermediaries deploy different communication strategies, supporting a well-established media studies argument about platform specificity, that is different uses and structures of interaction built into specific platform. For example, some people or organisations prefer Facebook over Twitter as their primary engagement platform, with *Better Homes and Gardens*, and its preference for Facebook, a case in point. There is also a great deal of cross-referencing between multiple social media platforms and web-based content – for example, between @Domaincomau Twitter, Facebook, Instagram and <https://www.domain.com.au/>, and equally @BhGAus.

The Facebook analysis indicates that leading Facebook pages in the sample choose posts with links as well as visual communication with photos and videos – and garner a very positive response, with posts containing URLs attracting a high number of comments.

In the Australian Twittersphere, the focus on @TheBlock and @ShaynnaBlaze accounts, with the largest number of replies to tweets, indicates the extent to which their conversations refer to themselves, their associates, and the shows' host stations, using relevant @mentions and hashtags to fuel and sustain public attention. This element of cross-promotion seems to be a general trend amongst the Twitter accounts

associated with popular TV programs, including also Channel 10's *The Living Room*, and Channel 7's *House Rules*.

A related point is that the competition shows such as *The Block* are able to explore the typical advantages for garnering public attention, thanks to the entertainment value and popularity of media events marked by the launch of a new series, room/kitchen reveals and season finale. They can also extend their networks of informal engagement by the deployment of TV celebrities with their own but intersecting social networks – constituted, for example, around *The Block* judge Shaynna Blaze, or former show contestants such as Alisa and Lysandra. Although some research has questioned the value of celebrity endorsement strategies for environmental causes (Turner 2016), generally, the use of @mentions, retweets and specific hashtags is designed to help support the visibility of accounts and reaching larger audiences.

The Twitter activity in the environmental not-for-profit category demonstrates an active use of retweets and links as a means to distribute information related to low-carbon living as a primary purpose. Quite active are @beyondzeronews and @renew\_economy, although they have not been considered 'highly engaged' given the measure of engagement adopted here.

Another interesting finding comes from the analysis of government organisations' use of social media platforms. Research has captured the potential (but also difficulties) of using social media by local councils for improved public engagement (Ellison & Hardey 2014). This study demonstrates a comparatively low level of engagement by government organisations on Twitter, especially compared to celebrity and media accounts, with the City of Melbourne a leading account. Interestingly, in the Facebook analysis, the most 'liked' individual message in the sample was posted on the City of Melbourne page, with over 50k likes – and reporting on a climate change award ceremony.

Building on these insights, there are several **practical take-aways** for formal communicators' media and communication strategy with a view to reaching a larger audience around sustainable/energy efficient home renovations:

- Connect with existing **online communities and social networks** organised around particular accounts and interests. For example, the NSW National Parks and Wildlife Service Facebook page appears highly commented on (thus highly engaged), with over 12,000 comments to 417 posts, and 9,000 distinct accounts commenting on the page. Generally, Facebook (through public Facebook pages) can be relevant for engagement because it lends itself for greater discussion than, for example, Twitter. Above all, connecting with active online communities while recognising the specificity of communication (word-based versus visual) and platforms is key.
- **Green content:** consider organising media and communication campaigns around events – circulating content over a sustained period of time, to foster pre-, around- and post-event interaction



(for example, a wrap-up of the event). *The Block* is a good example of this tactic; *Better Homes and Gardens* also uses the idea of countdown to an event (such as Christmas) successfully. Environmental or specifically green housing awards (at different geographical levels: state, local and international) might be useful events to consider, as well as popular events such as festivals, or open Sustainable House Day event.

- **Tailored local information:** local councils have been encouraged to use social media to distribute 'accurate information' pertaining to 'local conditions' in times of emergency, such as flooding (Bird, Ling & Haynes 2011). The focus on local information is relevant for energy efficient programs in the residential sector, given differences between the states' jurisdiction in Australia, as well as identified general patterns of social influence through the reliance on advice from friends, family, neighbours (Podkalicka et al. 2016). As this Twitter study shows, Australian environmental not-for-profits such as RenewEconomy, BeyondZeroEmissions or The Climate Council are quite active in disseminating information (Twitter), and so are international orgs such as Greenpeace and Al Gore's Climate Reality Project (Facebook pages). There may be room for formal communicators such as government orgs to complement these conversations with tailored local information.
- **Creative ways of communicating cost:** while there is a great deal of information exchange amongst home renovators, one aspect that was considered uncomfortable was sharing the actual cost of products and services used during home renovations (Hulse et al. 2015). Some examples from popular TV shows have attempted to do this in entertaining ways. For example, *Grand Designs Live Show* featured a broadcast segment whereby items/materials used in home renovation showed off their price tags. Similarly, popular *Houzz Interior Design Ideas* app/website includes pictures with price tags.
- **Holistic approach:** embed content /messages about energy efficient home renovations as part of communication about a range of everyday practices such as cooking, gardening, crafting, socialising, and also values such as comfort – rather than treating energy efficiency as exclusively technical and separate aspect of home-making (Shove 2003; Grandclément, Karvonen & Guy 2015).

With these practical recommendations, it is important to emphasise that the study draws attention to communications and media use as embedded within the broader social and material worlds. This means that the availability of accurate high-quality information on energy efficiency and sustainability (including cost) is important to affect the transition towards low-carbon living but the key is to

communicate and integrate green messages within the social systems of conversation, interaction, guidance and support.

## Further practical and methodological points about social media research

Social media platforms and their uses are dynamic and changing – thus it's important to keep up to date with media uses and trends (e.g. see e.g. Social Media Sensis Reports);

Hashtag research: while it is possible to identify a range of common hashtags, it's important to remember that anyone can create hashtags – therefore hashtag popularity and conversations they mark shift over time;

As with hashtags, there are evolving social media practices to demonstrate users' reactions and feelings towards social media content (e.g. emoji). Other recognised practices in the online space include lurking which has been juxtaposed with posting (Schlosser 2005). Importantly, there is an ongoing debate as to the impacts of online engagement on people's actual green practices (Merrick 2012);

Accounts: equally, accounts can be re-named, discontinued and moved to new/different accounts (e.g. Twitter account for *The Block* started in 2010 as @TheBlock9 but was changed over to @TheBlock in 2016);

There are different ways of measuring engagement. This study has focused on 'replies' (Twitter) and 'comments' (Facebook pages). Popular ways include counting 'likes', 'shares', 'followers' or 'fans' – depending on platform specificity. It is also popular to research users' social media interactions around particular events (e.g. political, climatic or media events) (see Bruns et al. 2011). This means that various approaches – with their strengths and limitations – need to be considered in making sense of social media research.

## Further research

User-centred cultural and media research: systematic, fine-grain analysis of users' social media consumption would help better understand the role of mediated communication and social networks in shaping desires and practices around comfortable and sustainable lifestyles – with home-making at the centre of this aspiration. PhD candidate Sarah Fies is investigating the role of digital media on the formation of social networks amongst mothers to support energy efficiency at home (as part of CRC RP 3028 project).

Social media research: Qualitative analysis of tweets' and Facebook posts' content would be useful to explore further themes, sentiments and details of user engagement; while social network analysis would help delve deeper into and represent the network structure around Twitter accounts or Facebook pages.

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## Appendix A: Additional details on research methods

Social media analysis involved the use of TrISMA infrastructure.

TrISMA (Tracking Infrastructure for Social Media Analysis) LIEF (Linkage Infrastructure, Equipment and Facilities) research infrastructure (LE 130100162) is part of a cross-institutional partnership between Queensland University of Technology, Curtin University, Swinburne University, Deakin University and the National Library of Australia. TrISMA has been developed to track the public communication of Australian social media users across Twitter, Facebook and prospectively Instagram (Bruns et al. 2016).

TrISMA's technical & analytic capacity

TrISMA allows to track, store and analyse the public social media communication by Australians at large scale. This novel infrastructure, specifically designed for research purposes, is being constantly developed and improved.

TrISMA Twitter Collection

As of 2016, it assembled an archive of over 2.4b+ tweets from ~3.7m Twitter accounts. These identified Australian public Twitter accounts are regarded as being within the Australian Twittersphere (Bruns et al 2014). This list of accounts is based on updated Twitter data from 2016, adding accounts that may not have been included previously. Due to the restrictions enforced by Twitter on the use of its API, TrISMA is not able to access more than 3200 tweets per account prior to mid-2015. However, TrISMA is able to access any tweets sent by the listed accounts since then.

TrISMA Facebook Machine

**The TrISMA Facebook Machine (FM)** collects data from status messages (posts) and comments from selective, public facebook pages only – and since the time they have been manually added for scraping. No private accounts or private groups are tracked. Unlike, Twitter Collection, non-Australian page accounts can be added.

TrISMA FM doesn't have a historical capability.

The first part of the Twitter analysis was conducted between April and June 2016, with final updates of the Twitter research conducted late July 2016. facebook research was conducted July-August 2016. The update of the research reported on here was conducted April-May 2017.