Public Wi-Fi Provision by Australian Local Government Authorities

National Survey Results

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Key Points

- Investment in public Wi-Fi provision (PWF) by Australian local government authorities (LGAs) has surged in recent years. However, there is currently no aggregated data on the rationales, terms of provision and outcomes of local PWF services.

- In November 2017 we surveyed Australian LGAs to help fill this knowledge gap. This report is a preliminary analysis of the survey data.

- On-line surveys were sent to 456 LGAs, with an effective response rate of **24%** (n=111). The highest response rates came from Victoria, New South Wales and Tasmania.

- **62%** (n=69) of the 111 LGAs participating in the survey provided public Wi-Fi.

- The most common reasons for providing public Wi-Fi were encouraging tourism, promoting digital inclusion, and boosting business activity.

- The most popular places for providing public Wi-Fi were CBDs and retail precincts, while parks were comparatively underprovided.

- Most networks download and/or time limitations. Almost **35%** limited download traffic to 200 Mb per session. And almost **50%** restricted sessions to 30 minutes.

- **37%** (n=41) LGAs responding to the survey had a digital strategy or equivalent document, although only half of the strategies (n=20) addressed public Wi-Fi provision.

- **39%** (n=24) of respondents have evaluated their public Wi-Fi provision. In 8 cases evaluation led to increased investment in public Wi-Fi infrastructure, while 12 resulted in no change to provision, and 1 evaluation led to the termination of the project.

- The survey reveals knowledge gaps in how local governments evaluate public Wi-Fi, what LGA officers understand by the term 'evaluation', and what impact evaluation has on decision making in the area of public Wi-Fi provision.

Survey Background

In November 2017 researchers from the Centre for Urban Research, RMIT University surveyed Australian local government authorities (LGAs) to gather data on public Wi-Fi (PWF) provision. The survey is part of an Australian Research Council funded project Public Wi-Fi as Urban Infrastructure: the Australia Case (ARC Discovery Project DP150102818).

The survey was designed using Qualtrics software and administered on-line. 456 LGAs from across Australia were invited by email to participate. The survey was distributed on 1 November, with a reminder sent out on 13 December. The survey closed on 31 December 2017.

The survey included questions about the reasons for PWF provision, network locations and access terms, the prioritization of PWF as a local government service, and evaluation and strategic planning. LGA's not currently providing PWF were also invited to participate in the survey, with questions focussing on plans for public Wi-Fi provision.

122 LGAs (or 26% of those LGAs invited to participate) began the survey, and 111 LGAs completed the survey, an effective response rate of 24%.

The survey participation map in comparison with Australia's population density map is presented in Fig. 1.
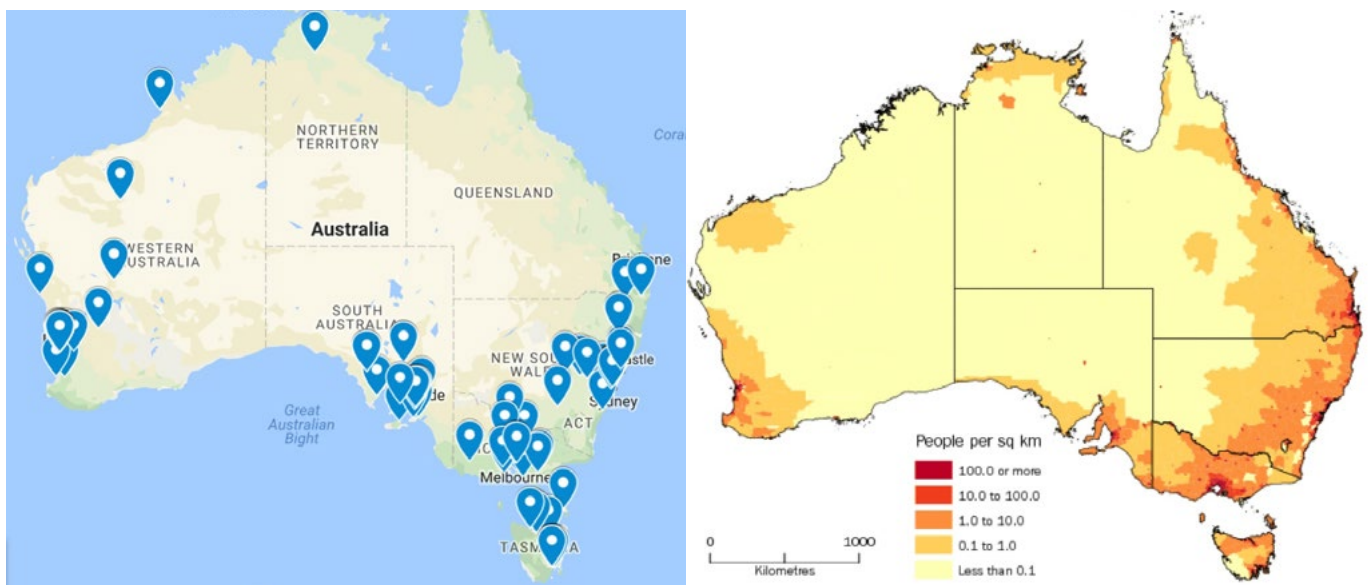

Figure 1 Survey participation and Australian population density maps.
Source: *LGA PWF survey, Australian Bureau of Statistics (ABS)*

As expected, a higher response rate came from regions with higher population densities, particularly from coastal areas in Victoria, Western and South Australia, New South Wales and Tasmania. The response rates from Queensland and Northern Territory were low, totalling three completed surveys.

Data analysis & interpretation of results

How Many LGAs Provide Public Wi-Fi?

In international terms, the widespread provision of public Wi-Fi by Australian city governments or municipal authorities is a relatively recent development. This section provides evidence of a rapid scaling up of public Wi-Fi provision over the past five years, with plans for further network rollouts within the next three years. Overall, 69 LGAs (62.2% of the total amount of completed surveys) indicated they were providing PWF at the time of the survey. 41 LGAs (36.9%) were not providing PWF, and one respondent did not know.

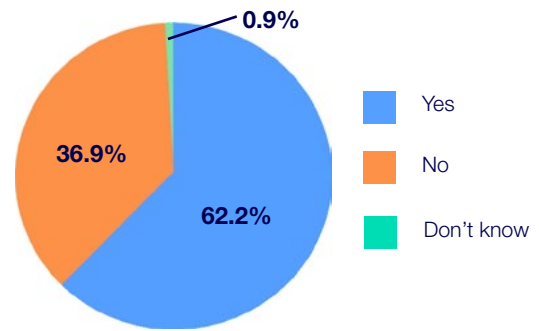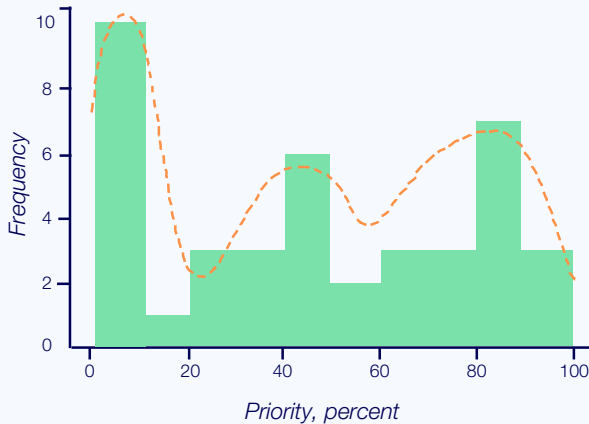*Does your LGA provide public Wi-Fi?*

- Yes
- No
- Don't know

0.9%
36.9%
62.2%

Figure 2 Provision of public Wi-Fi by survey respondents

We asked respondents to rate the priority of providing public Wi-Fi on a scale, with 0 representing the lowest priority and 100 the highest.

Distribution of LGAs by priority of provision of public Wi-Fi: non-providers

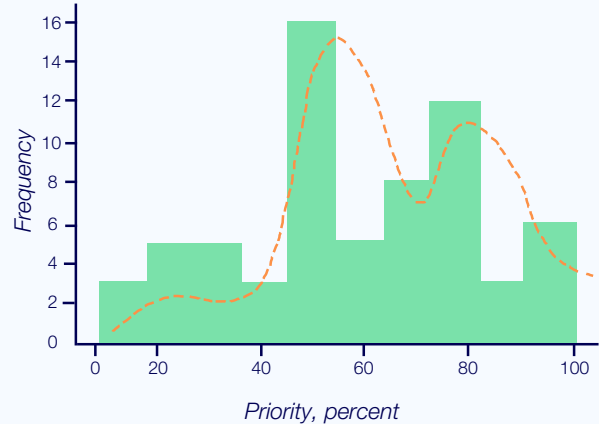*Distribution of LGAs by priority of provision of public Wi-Fi: providers*

Figure 3 Prioritisation of public Wi-Fi provision by non-providers and providers

As Figure 3 shows that non-providers, on average, assess the priority of public Wi-Fi provision as very low. The survey did not gather any data on factors that inform this ranking. What is clear, though, is that when provided, relative priority of public Wi-Fi as a council service increases over time (Figure 4). This may point to the increasing exposure to and value of PWF over time, or a tendancy to rate a service important simply due to its longevity.

How high a priority should the provision of public Wi-Fi be for LGAs?

Standard deviation
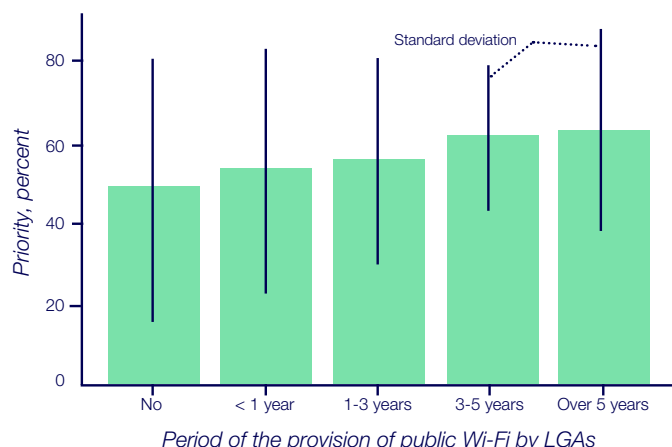
Period of the provision of public Wi-Fi by LGAs

Figure 4 Prioritisation of public Wi-Fi provision and the period of its provision

A further question that can be asked is the extent to which priority ratings influence decision-making on future provision of public Wi-Fi. In particular, does assigning a low priority lock LGAs into a future of non-provision? Figure 5 plots the dependence between the probability of public Wi-Fi deployment by non-providers in the next 3 years and prioritisation of its provision. There is an observable trend: the higher is the probability that public Wi-Fi will be provided in the nearest 3 years, the higher is the assessed priority of its provision (the coefficient of determination, or R-squared=0.54).
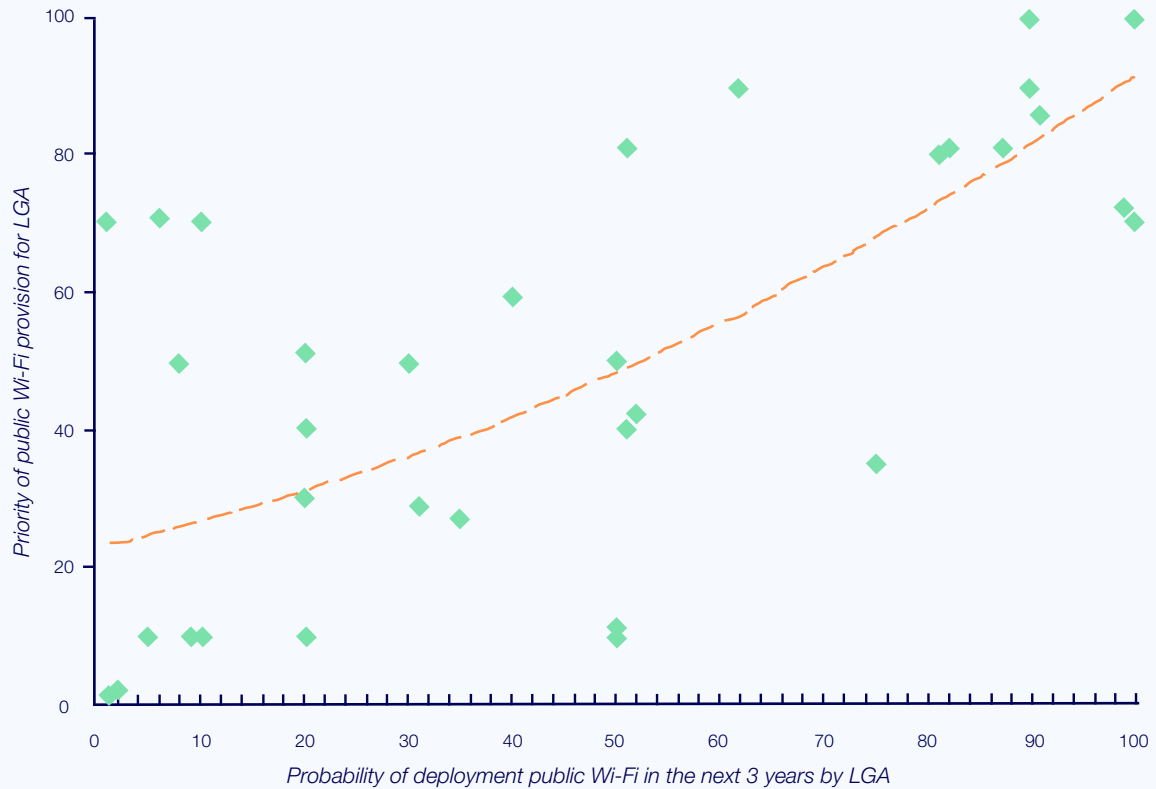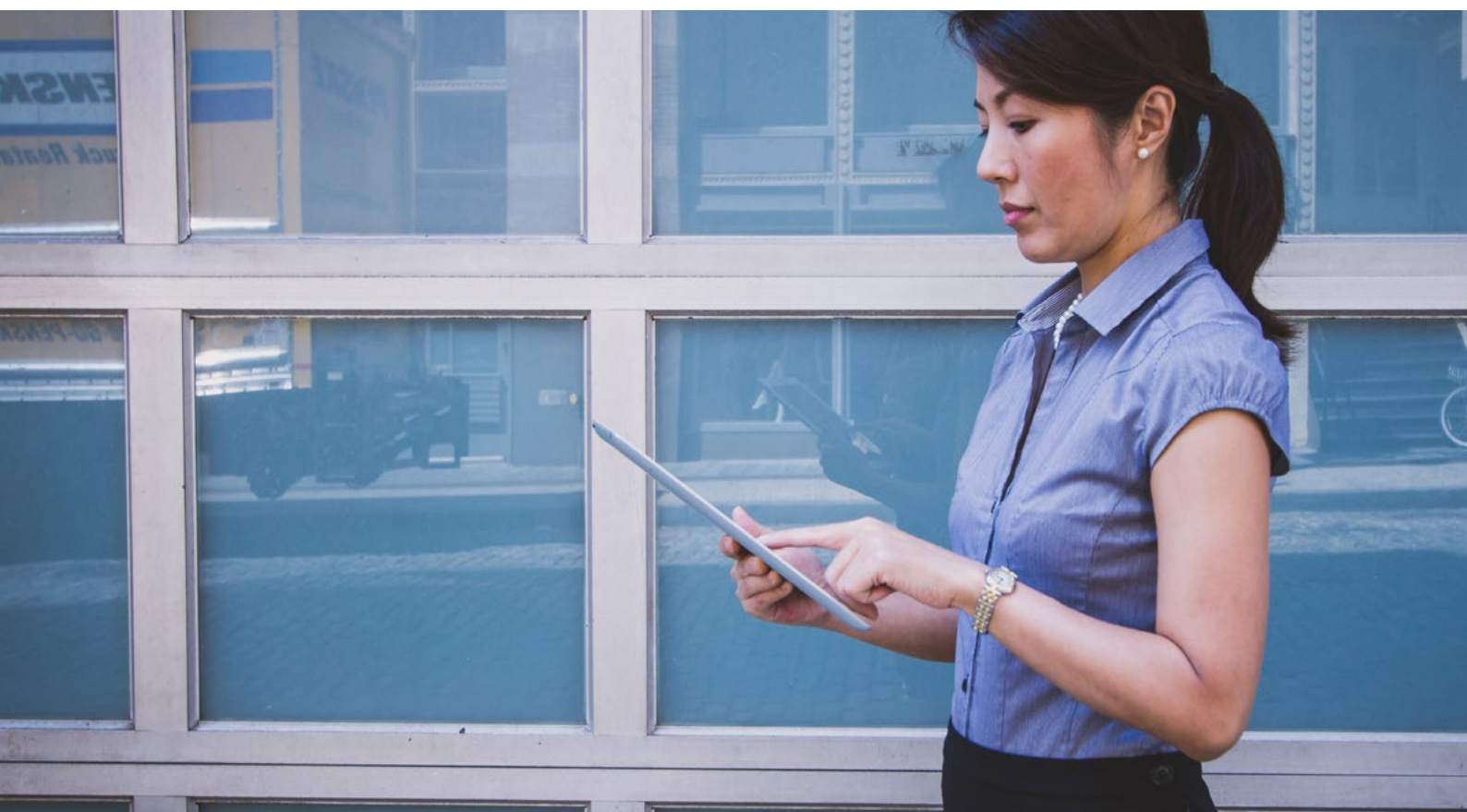

Figure 5 Prioritisation of public Wi-Fi provision by non-providers (n=41 non-providers)

Why and Where are LGAs Providing Public Wi-Fi?

LGAs were asked why they invested in PWF and where the service was available. The provision of public wi-fi by local public libraries during normal operating hours, which is usually managed by library corporations, was excluded from the survey (although the use of library-based networks beyond opening hours, where provided by LGAs, was included). Survey respondents were presented with a list of the most common rationales and service locations, as identified in the international literature, from which to choose. Responses to questions about rationales for provision and locations covered are presented in Fig. 6 and Fig. 7.
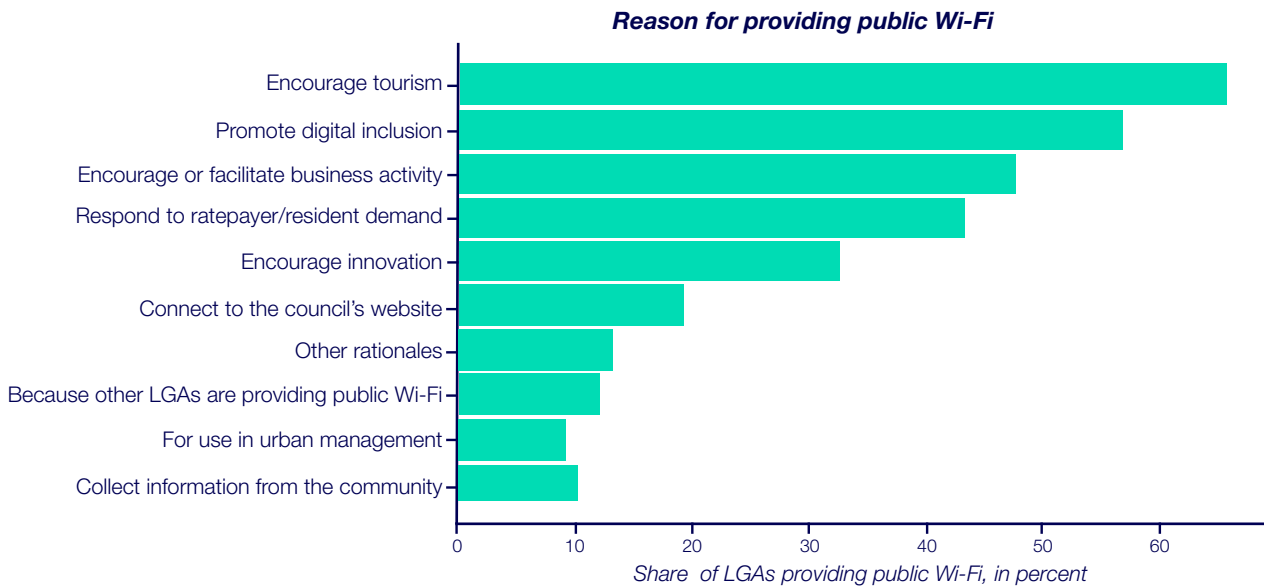
Reason for providing public Wi-Fi

Share of LGAs providing public Wi-Fi, in percent

Figure 6 Reasons for providing public Wi-Fi

The main rationales identified for providing public Wi-Fi - encouraging tourism, promoting digital inclusion, and encouraging business activity - are widely cited in the international literature. While there is increasing attention to the contribution of public Wi-Fi to digital inclusion, there is currently a research gap, both internationally and in Australia, on whether and how public Wi-Fi impacts on tourism, business activity and innovation. Methodological challenges in determining this include a basic lack of access to network data. In some cases, network data may be unavailable to (or unaffordable for) LGAs, where they have contracted network provision to telecommunications providers. Additionally, there has been little qualitative research to gather data from users of public Wi-Fi services. A further observation on rationales for provision is the relatively low use of PWF services as a vehicle for community engagement.
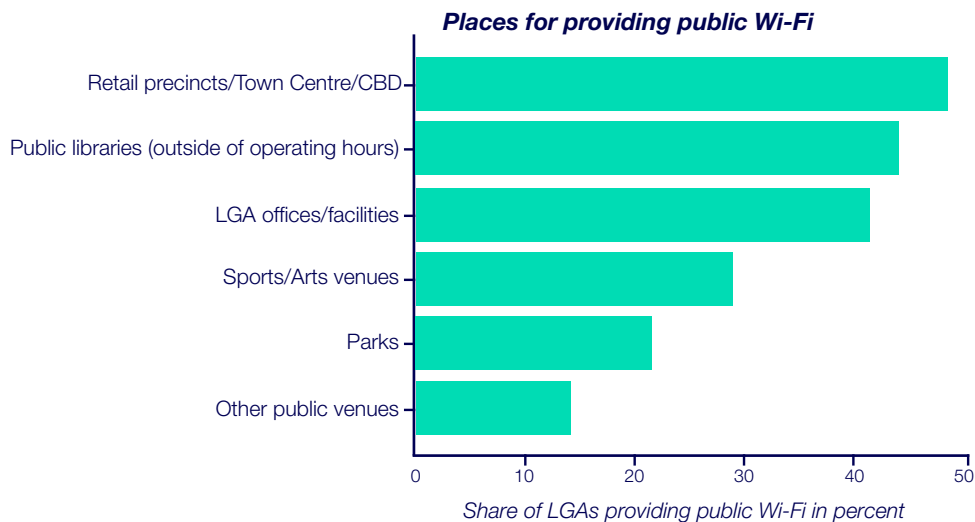
Places for providing public Wi-Fi

Share of LGAs providing public Wi-Fi in percent

Figure 7 Availability of public Wi-Fi networks

The trend to locate PWF networks in town centres is consistent across the globe and seems an obvious locational choice, given the concentration of people and services in CBD areas, technical restrictions on network range, and resource limitations. However, the survey's locational data suggest the importance of existing infrastructure (institutions, buildings, poles and power, and backhaul networks) as a determinant of PWF provision. This may explain the relatively low priority for providing PWF in parks, despite the significance of tourism as a rationale for provision (see Fig 8 for cross-tabulation of the reasons for PWF provision and service locations).

		Where is your public Wi-Fi service available? (multiple choices possible):							
		LGA office/ facilities	Other public venues	Retail pre-cincts/Town Centre/CBD	Parks	Sports/ Arts venues	Local Government offices and service centres (eg Community House)	Public libraries (ONLY if a strategic decision was made to provide access to the public library network out-side the building and outside operating hours)	Total
Why does your LGA provide public Wi-Fi? **(multiple choices possible)**	Other rationales	3	2	4	3	3	3	4	9
	Respond to ratepayer/ resident demand	15	3	10	5	10	16	14	30
	Encourage or facilitate business activity	16	5	18	5	10	17	12	32
	Promote digital inclusion	16	5	19	9	12	21	23	39
	Encourage tourism	16	9	26	9	9	15	19	45
	Encourage innovation	9	5	12	3	6	11	12	22
	Because other LGAs are providing public Wi-Fi	2	2	5	4	2	2	4	8
	For use in urban management	5	2	5	4	4	4	4	6
	Collect information from the community (eg for consultation or use planning purposes)	2	2	4	3	2	2	5	7
	Connect to the council's web-site	6	3	7	4	6	7	10	13
	Total	28	11	33	15	20	27	30	69

Figure 8 Availability of public Wi-Fi and reasons for its provision

Network Limitations & Restrictions

The majority of participating LGAs (more than 90% of all participants) impose download and/or access time limits on use. 9 LGAs provide public Wi-Fi with download and time limits not less than 1 Gb and 3 hours respectively. The design of the survey did not include an "unrestricted" option as the possible answer to the questions about time and traffic limitations. However, according to our information, at least two LGAs in Australia provide unlimited and unrestricted access to public Wi-Fi. The survey did not gather data on how the limits were determined and whether they supported the rationales for providing PWF (eg, to encourage tourism or promote business activity).
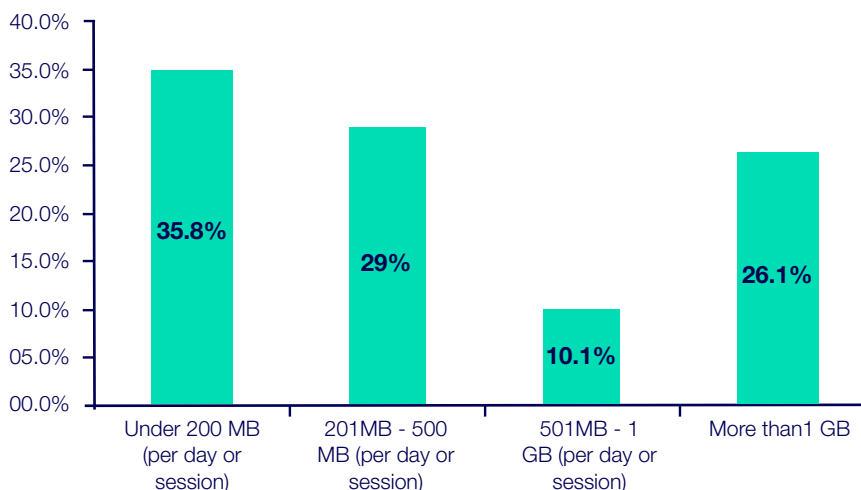

Figure 9 Imposed download traffic restrictions, per session

The absence of a clear link between rationales and network access terms may result in suboptimal investment. The survey did not seek data on network bandwidth (speed), due to the many factors that impact performance across individual PWF networks.
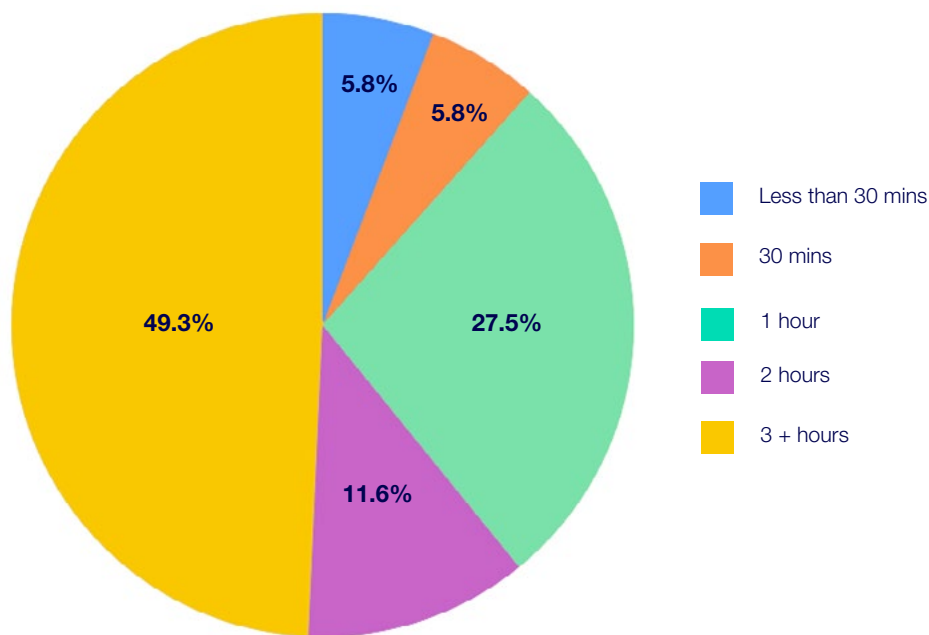

Figure 10 Imposed session time restrictions

Do Local Governments Include Public Wi-Fi Provision in Digital Strategies?

37% (n=41) of survey respondents confirmed that their LGA had a digital strategy or an equivalent document to guide decision making and investment choices relating to digital technologies and services. However, only half of these digital strategies (n=20) included specific discussion of public Wi-Fi provision, and a further 14% (n=6) of respondents did not know whether their strategy included PWF (see Fig. 11). Although the numbers are small, the result supports discussion elsewhere about a 'silo' approach to LGA digital investment.

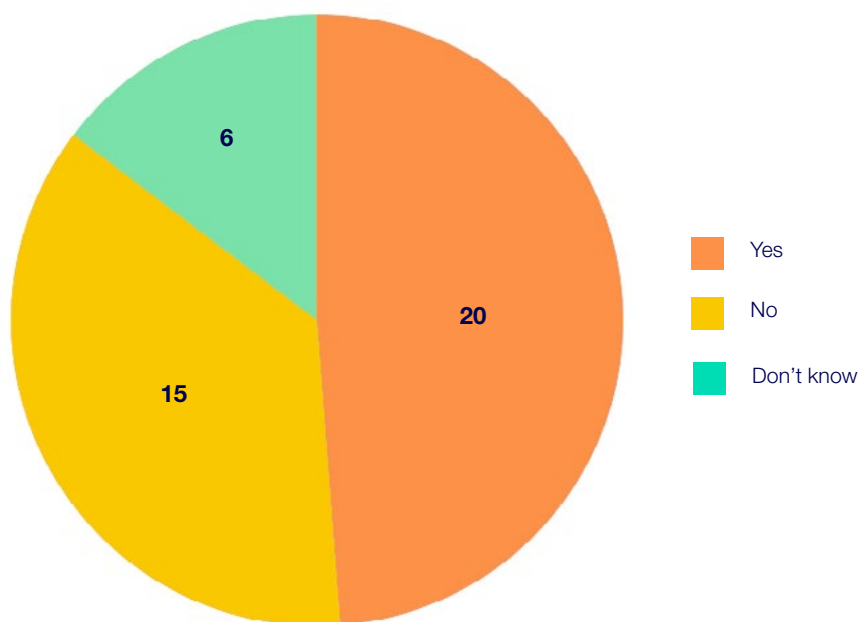*Does your digital strategy address public Wi-Fi provision?*

Figure 11 Addressing public Wi-Fi provision in digital strategies

Do Local Government Authorities Evaluate their Public Wi-Fi Provision?

Around 35% (n=24) of respondents indicated their LGA has undertaken evaluation of its public Wi-Fi service. When asked about evaluation outcomes, 12 respondents indicated that evaluation led to no changes to the service, 8 said that evaluation led to increased investment in public Wi-Fi, and in 1 case evaluation led to the termination of the project. 3 respondents were unable to identify any outcomes. The survey did not probe the format or extent of the evaluation, so it remains unclear what respondents understood by the term 'evaluation' and what the evaluation was in practice. To investigate these issues, follow-up questions will be sent to selected LGAs.

Conclusions

The survey produced interesting and sometimes unexpected results. For example, it is apparent that public Wi-Fi non-providers on average assess the priority of a public Wi-Fi service, relative to other council services, much lower than providers. This may create a hurdle for initiating a service trial. Conversely, though, the prioritisation of public Wi-Fi provision increases the longer it has been provided. This could be evidence of the effectiveness and importance of public Wi-Fi, it may reflect a tendency to rate services as important due to their longevity, or even the political difficulty of discontinuing a service once it has been initiated.

The lack of provision of PWF in public parks is also surprising, given the high use and amenity value of metropolitan parks (most participating LGAs are located in metropolitan regions) and the importance of tourism as a service rationale.

Finally, while local government services in areas such as recreation have well-established service benchmarks and evaluation processes, a systematic approach to evaluating public Wi-Fi services has yet to emerge. There is a strong argument for sharing experiences and data in this area, as public Wi-Fi service provision continues to expand.

The RMIT Public Wi-Fi research team is grateful to all survey respondents for contributing their time and knowledge. For further information on this project contact Viktor Grechyn at viktor.grechyn@rmit.edu.au.

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