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SIMPLIFY & INSPIRE

MOBILE LOCATION DATA HANDBOOK

APRIL 2017

This document has been originally developed by the Interactive Advertising Bureau Australia Mobile Advertising Council in March and April of 2017.

ABOUT THE IAB MOBILE ADVERTISING COUNCIL

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FOREWORD

Due to the proliferation of smartphone usage and people becoming increasingly comfortable sharing location data with the various apps they use, advertisers can now access very valuable actionable insights into where consumers have historically been and also personalise ads in real-time based upon current location.

The potential is very exciting for the industry but, as with most advertising technologies, the only way to truly ascertain its value is to “get your hands dirty” via test and learn.

Hence, this handbook has been written by some of our subject-matter-expert members to act as both an introduction and a supportive practical guide to start considering and utilising mobile location data. However, the biggest issue holding everyone back remains the quality of some of the data, so we have also included a section including questions one should ask about the data quality when doing diligence and initial testing.

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INTRODUCTION

The journey to truly harnessing the power of mobile location data has been longer than anyone would have expected in the early days of mobile. Surely, with a mobile phone in everyone's pocket, all you need to do is serve them a 2-for-1 coffee voucher as they are standing next to a coffee chain outlet and your store will be full of caffeine-starved punters quicker than you can say "single roast". Well, not quite. Any plans to bombard users with SMS messages as they walked around the CBD was quickly quashed by the Spam Act of 2003. With push-SMS now requiring opt-in — which was exceedingly difficult to drive acceptance of — unsolicited location-based push SMS advertising campaigns were dead in the water. However, pull advertising, like display banners on websites, severely decimated scale and therefore viability at that time.

However, location data could still provide a very granular understanding of people, and when combined with other data sources, it became the holy grail in understanding consumer behaviour. So, one of the earliest ways to truly use location data was for smarter advertising.

Mobile location advertising has only truly arrived in Australia over the last couple of years, allowing brands and marketers the opportunity to engage with consumers based upon not only their current location, but also their historical locations, greatly increasing the opportunity to reach an audience at scale. This location targeting can be delivered with even greater accuracy on mobile than on desktop, and delivered through any format such as video, display or native. The rise of programmatic has allowed new technologies like this to evolve and gain public acceptance to the point they have become established as essential channels for marketers, whilst simultaneously helping publishers monetise their inventory in new ways.

There are more technology and location providers than ever in this marketplace and new businesses are setting up shop as we speak. If you are new to mobile advertising, and especially the idea of location advertising, it can be quite daunting and complicated. If you add the somewhat complicated matter of programmatic advertising and what machines are doing for us in advertising today, you potentially have a massive learning curve ahead of you.

The challenges of how to deliver effective mobile location campaigns, combined with all the different location methodologies in the marketplace, is now at a tipping point where the industry is seeking clarification, guidelines and best practice.. The idea of this guide is to focus on the efficacy of mobile location advertising, whilst the industry at large can debate who has the best technology and so forth in order to maintain a high industry standard.

The purpose of the location handbook, published by the IAB Mobile Advertising Council, is to give marketers an overview and first glimpse of what mobile location advertising is and how it works and help you with a few questions you should ask your agency or partner when stepping into this exciting and ever-evolving space of mobile advertising.

WHAT IS MOBILE LOCATION?

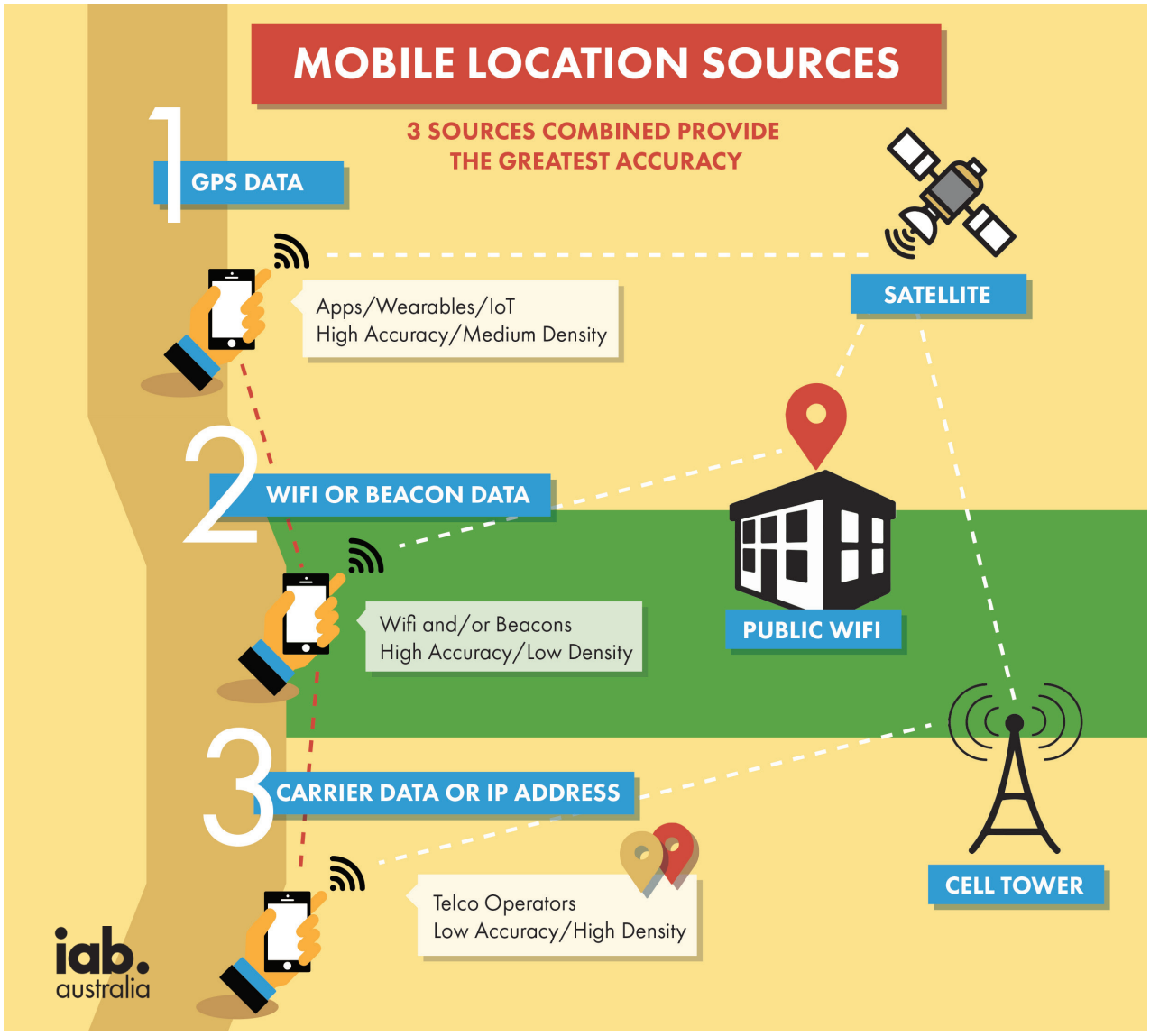
Location advertising is nothing new and is one of the oldest and simplest forms of advertising. It is something marketers have benefited from since the earliest days of advertising. For example; the sign post outside a café or a street sign directing you to store location is in fact a form of location advertising. Humans are constantly on the move and the one thing we most certainly have with us is our mobile phone. It's how we communicate, take photos, share information and get directions from point A to B. The mobile phone has simply made this form of advertising more scalable and arguably more relevant for the consumer. The smartphone —together with apps you use, the Wi-Fi network you latch on to, your telco provider and the websites you visit — collect information about your whereabouts and location in real time or over a period of time. It is the only medium that Australian's take with them everywhere and the one that can best paint an accurate picture about how we move, consume and behave in the real world. The two main terminologies used for basic targeting are either real-time targeting or historical targeting.

1 REAL-TIME TARGETING

Using a GPS signal, current Wi-Fi connection, beacon or telco carrier inferred IP address to determine your current location and then place an ad on the consumers smartphone. Commonly used by retail or consumer packaged goods brands to increase awareness of, for example, the location of nearby store.

2 HISTORICAL TARGETING

Using one or multiple signal sources as explained above to determine if you have been at a specific location over a space of time. For example: Targeting consumers who have been to a specific car dealership twice or more in the last 30 days.



The type of data used to determine the location of a device is of crucial importance and its efficacy and relevance, for various use cases, is hotly debated. Depending upon your business objective and desired targeting, different data or signal sources can be used.

In order to determine your location you must first be able to access one of a variety of identifiers related to your device, then reference it against a particular locator source. This identifier can be passed through an ad call, to an SSP, publisher, ad server or DSP to be referenced against a provided location management tool. This location information can be combined with other defined or contextual data points, to deliver the most pertinent advertisement at that time. It is important to understand these different identifiers and the type of location data they can unlock, what they mean and how they can help, or perhaps not help, your efforts.

A basic explanation of location sources is as follows:

1 GPS DATA

If using an app on your phone whilst on the move there is a high chance an SDK (Software Developer Kit) has been implemented which passes back different types of information to a server. The app, if given permission, can access your phone's GPS function with high accuracy, determining your current or historical location and place an ad in real time or based on that historical information. Direct access to this GPS data is however restricted to in app usage only.

2 Wi-Fi/BEACON DATA

Accessing a free Wi-Fi in public, at a large corporation or a small café, is just as accurate as your GPS inferred data. The only restriction is the Wi-Fi signal itself. It can be as large or small as the solutions provider have made it. This again allows a DSP to determine your current location. This location data is in some cases provided by your tech partner or implemented using third-party data sources.

A beacon differs from some other location-based technologies as the broadcasting device (beacon) is only a one-way transmitter to the receiving smartphone or receiving device, and necessitates a specific app installed on the device to interact with the beacons. This ensures that only the installed app (not the iBeacon transmitter) can track users, potentially against their will, as they passively walk around the transmitters.

A beacon (or a series of beacons) only interact with a specific, purpose built SDK within an app. For example, a fast food restaurant may have installed some beacons within their physical stores to track customer visitation. To harness the data from the beacon(s) the user must have the app belonging to that particular fast food chain open on their device, or at least have enabled background app refresh, during the time that they are in the fast food restaurant, this will then collect the relevant location data for interrogation.

This is a fast moving space and we expect to see this become a more scalable option, increasing through 2017.

3 CARRIER DATA OR IP ADDRESS

Location data determined by your telco provider is the least precise data source, but is the type most broadly available. It uses the IP address given to you by your carrier to determine your current location. Unfortunately, accuracy is determined based upon the radius of your nearest cell tower, so it can be up to 10km from where the cell tower is placed.

ROLE OF MOBILE LOCATION

In 2016 the penny dropped and businesses finally realised what consumers have known for a while: Location plays a bigger part in our lives than anyone gives it credit for. Lost? GPS. Need a lift? Uber. Peckish? Foodora, Deliveroo, Uber Eats.

When done well, location-based marketing strategies can boost the reach, relevance and effectiveness of brand campaigns.

The real-time data mobile users generate when they order a takeaway, swipe at their favourite retail store, browse through news on their smartphones or hitch a ride, provides a rich resource of insight into who individuals are, what they do and where they are going. This year, as smartphone sales tipped one billion globally and usage of location services soared (Uber is now the top taxi app in 108 countries), it's no surprise location's potential to give companies a competitive edge has earned it a sizeable place on the business map.

Location intelligence can be used to transform information from a variety of devices into detailed, unique shopper profiles that can open the door to higher engagement, loyalty and sales across multiple channels — especially mobile, making it the ideal link between the digital and real world.

PLANNING LOCATION-BASED CAMPAIGNS

When should we use location data in our campaigns?

Location is a fantastic indicator of who the consumers really are. It sheds light on how consumers spend their daily lives, reveals their path to purchase, and creates new opportunities to reach consumers in the right state of mind. Location can and should be used throughout the entire marketing life cycle, from planning to creating target audiences. It even has a role to play in measuring ROIs. Similarly, location should not only just be considered from a media point of view, but also a creative one. Dynamic creative can serve particular creative variants based upon the same location triggers, enhancing the efficacy of that location campaign.

What are the key considerations from a campaign perspective?

Planning is vital to any location based marketing campaign. Using established location patterns in the planning stage can be incredibly helpful for understanding and leveraging consumer behaviour. A marketing plan for an ice cream stand selling cool treats to a summer beach crowd using location based marketing will look very different than a plan for selling luxury real estate properties.

It might be very effective for the ice cream stand to target consumers within a few hundred yards of the stand with a 20% off coupon, for instance. On the other hand, there is practically no advantage for a real estate company to target nearby foot traffic, and offering a coupon would be absurd. They would see far better results targeting key segments within a city's financial district.

What industries are the biggest spenders in Location-Based Marketing?

Major brands from almost every industry are experimenting with location based marketing, as are smaller companies looking for an edge in a crowded and increasingly competitive market. As the techniques for applying location-based marketing improve, so do the results. As is often the case, it's the early adopters who are reaping the biggest benefits. We're currently seeing brands from retail, quick service restaurant (QSR) chains, automotive, fast-moving consumer goods (FMCG) and banks as the early adopters.

Is location based marketing a "mobile only" solution?

There is no question that location-based marketing began as a mobile-first approach to reaching potential customers. Mobile devices are highly personal items and constantly track individual interests and preferences, as well as location data. As such, they are a goldmine of customer data. While location-based marketing depends

on that data to deliver results, its advantages extend far beyond what a customer can view on their smartphone or tablet screens.

Cross-device "handshakes" (such as cookies) can allow customer data to carry over from multiple devices. This means that data generated on a mobile device can be combined with data from a desktop computer, eventually a smart-home device (such as a smart-TV, fridge or washing machine) or even data from an internet-connected vehicle. While some of these advances haven't debuted yet, they are on the horizon. And when they make it into the field, location-based marketing will play a major role in this cross-device, omni-channel marketing, allowing location-defined messaging to reach consumers no matter where they are.

How do I use mobile location advertising to compliment my traditional media buys?

Mobile location can be used to compliment any other media buy. However, the exact methodology of creating a real-world connection between all of your media choices is yet to be truly defined. Printing QR codes in newspapers or on billboards has had limited success in Australia. The use of beacon technology has greater promise but the cost of investing budgets into the production requirements needs to be factored in versus the benefit of simply buying more media.

LOCATION BEYOND MARKETING

1 WHAT IS THE VALUE OF CONSUMERS' LOCATION DATA?

Location data allows marketers to create new audiences and to gain new insights into existing audiences. It allows audiences to be targeted more precisely than ever before, and can measure online/offline attribution for mobile, desktop, out of home (OOH) and TV. When combined with other device data, it can even enable cross-media integration, allowing new options such as OOH marketing that follows a customer to their mobile device.

2 WHO OWNS ALL THIS DATA?

Given the potential integrations and wide scope of the technology, there is no easy answer to this question. Data ownership varies on a case-by-case basis, as dictated by the terms of the partner contracts. In general, brands and partners will share some level of ownership of the data.

3 CAN THIS DATA ENABLE BETTER PLANNING?

Absolutely. With audience insights, brands can define their most relevant marketing "moments" in terms of location, in addition to the standard dimensions of day and time. This allows for a new level of insight into customer behaviour. Location-related engagement by different audience segments can also help you discover a brand's or product's key audiences, allowing future campaigns to be fine-tuned accordingly.

4 CAN IT ENABLE MORE EFFICIENCY IN A PROGRAMMATIC ENVIRONMENT?

Yes. If you know which audience segment to target, you would be able to better bid for that audience. The app categories for targeting also can be selected based on insights from previous campaigns.

12 QUESTIONS EVERY BUYER SHOULD ASK ABOUT LOCATION DATA

Location (Place) Data

1. What is the source of your location ("place") and information (i.e., data about what businesses, points of interest or addresses are found at specific latitude/longitude in the physical world)?

2. What is your overall share of first versus third-party place data (e.g., do you have a proprietary mapping system/address data or utilize a third-party database)?

3 What is your approach to organizing places/place data (e.g., polygons, geo-fence radii, centroids etc.)?

4 How precise is your place information (e.g., are you able to discern the location of a specific store in a mall versus the parking lot)?

5 How comprehensive is your place information (e.g., what percentage of business, addresses, or points of interest do you have place data for)?

6 How do you qualify and/or verify your place information? For example, how do you address the scenarios below:

- How do you compensate for bad addresses?
- Do you have a way to account for recent opening and closing of locations?

Device Data

7 What are your sources of device location data (data used to locate a device) and how do you receive that data? Is it, for example, from first-party (owned-and-operated properties/servers), direct third-party deal/relationship, impression/exchange data, and so forth?

8 What types of device-location data do you use? Is it device GPS, cell tower/triangulation, user-reported (check-in), user-reported (registration), Wi-Fi, IPS, beacons, low-power Bluetooth, zip-local content, centroids, near field communications, etc.)

9 How do you identify and filter out the types of targetable location data that are not appropriately accurate for my campaign's needs?

10 How long is your location data stored/considered relevant?

- Is your device data time-stamped?
- If you offer dwell times, how are these calculated?

11 How do you verify/substantiate that the device location data you are using is accurate?

12 What is the scale of your device location data?

REPORTING AND INSIGHTS

1 TARGETING

If a marketer's audience can be defined by location attributes, then these attributes can be used to pre-target campaigns so that advertising is only delivered to devices matching a specific profile. For example, for an audience of students we are likely to see clusters of devices at locations we know to be universities, thus a marketer can choose to only deliver ads to devices which are in the locale of a university.

Alternatively the marketer could choose to only target devices which have been seen in the locale of a university at any stage within a time frame. This approach tends to provide the marketer with more scale for campaigns as it uses more location signals for determining where a device had been in the past (such as Wi-Fi IP, latitude and longitude coordinates).

2 FOOTFALL ATTRIBUTION

Location signals can be utilised in attribution modelling. In post analytics a marketer can see whether any devices which saw or interacted with a mobile advertisement were then seen in a specific location. For example, a car manufacturer may want to understand if any prospects who saw an ad for their car then visited a dealership.

Care should be taken when using mobile signals to infer attribution. Location signals by nature are not always persistent. Wi-Fi IP addresses may change if the dynamic or GPS coordinates are not accurate or visible to the device. Therefore, location signals are better used in probabilistic attribution models as opposed to deterministic. Continuing the car manufacturer example above, location can play a role in determining the effectiveness of an ad campaign by comparing the proportion of devices which saw an ad and then visited a dealership with a control group of devices which did not see the ad. A higher proportion of devices exposed to the campaign and visiting dealerships than the control group would be an indicator of positive ad effectiveness. However, using location signals as a count of customers would be risky.

Accuracy and reliability of this kind of attribution modelling will only improve. Many of those who used to rely just on polygons (mapped from GPS boundaries on satellite imagery) are moving to new systems that also factor in ambient Wi-Fi, beacons, Bluetooth and so on, to further improve accuracy and add features like employee exclusion and in-transit detection that can remove these from the data.

3 AUDIENCE UNDERSTANDING

Location signals can be used to help understand audiences better. Devices seen at the location of universities can be inferred to be students. Or devices seen at sports stadiums could be seen as sports enthusiasts.

When using location to infer behaviours, marketers should be careful to ensure a range of day points is used in robust statistical models to give confidence to the behavioural inferences. For example, devices seen near a university could be students but they might also be teachers, maintenance staff or nearby residents. Only a broader set of data including other locations or behaviours can give you more confidence in the inferred behaviours.

4 COMPETITOR INTELLIGENCE

Location signals can be used to determine whether a customer of one business uses the services of a competitor. Once a device has been identified, either through seeing or interacting with an ad or by being observed at a specific location, a marketer can, in analysis, see whether that device has also been seen at other relevant locations, such as those of a competitor. Often this analysis is delivered in a cross visitation report.

(NOTE: Attribution requires the user to access their device in store. If the device is not accessed, no visitation is recorded. It should be used as an indication of results, not an exact figure.)

HYUNDAI DEALER STEALER: Festival of Media (Initiative & Ansible)

OBJECTIVE

The challenge was two-fold; get on the consumer's consideration set and get them through the dealership door to experience Hyundai's value for money benefit.

INSIGHT

The Australian automotive industry is pressured by an increasing level of consumer empowerment. The opportunity to convert a sale used to rely on the strength of the dealership, but in the last 10 years, the average number of dealership visits has declined from 5 to just 1.6. Greater "at-home" research means that consumers only visit the dealership of the car they're most interested in, to physically inspect the car and seal the deal.

This has resulted in greater upstream pressure for marketing activities to aim at converting consideration into active intent prior to a dealer visit.

Increased competition from entry-level marques, Hyundai's youthfulness and staid "cheap" perceptions meant that the brand was falling outside of the top consideration set. Without the opportunity of the traditional dealer visit to prove its worth, Hyundai's sales were falling below company expectations.

Two trends exposed the insight that fuelled our approach:

- When consumers were in the market for a car, they would only test drive cars they had more or less already decided on.
- 60% of all car shoppers use mobile devices to conduct a large chunk of their research.

Given the high-involvement nature of an automotive purchase, we knew that people were using their phones to compare vehicles and prices during dealer visits.

The crucial insight: Consumers viewed their smartphones as a tool for negotiation in dealerships. We therefore opted to harness mobile's capabilities, given the consumer's reliance on the device throughout the path to purchase.

STRATEGY

Our strategy was good in theory. After all, the use of outdoor to combat competitors on site was a well-trodden path in the automotive category, but motivating consumers to leave the car that they'd mentally already bought and consider a different brand, was a different challenge altogether.

In dealerships, consumers viewed their smartphones as a tool for negotiation. They would search and compare prices and even show the dealer the offers they could secure from competitors. So the opportunity was to both get the Hyundai brand on their radar as well as serve our competitive prices in context of the deal they were in the middle of negotiating.

At the heightened moment of consideration (in dealership) we used hyper-targeted mobile tactics to disrupt the consumer's path to purchase and entice them to visit a Hyundai dealership instead.

Standard geo-fenced targeting wouldn't be enough to deliver the desired depth of engagement, so multiple proprietary technologies were identified that could be fused together to inject Hyundai into the consideration set and disrupt the purchase cycle at the crucial moment of intent.

EXECUTION

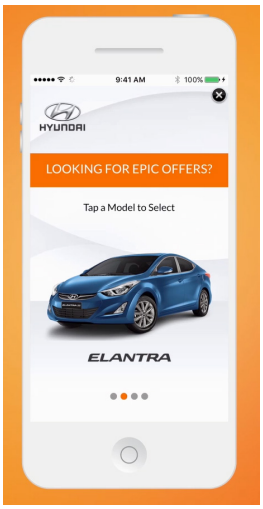
Firstly, Mazda, Toyota, and Hyundai dealers were digitally mapped across Australia using hyper-targeted polygon mapping to connect with the phone's GPS. This allowed targeted advertising to people who were physically in or had been into a competitive dealership.

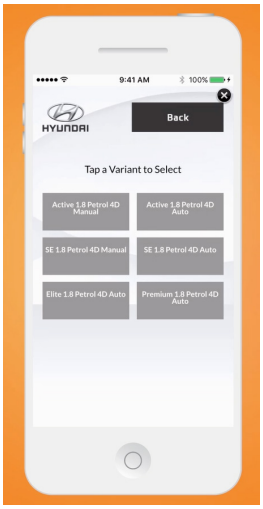
Then, a simplified drive away calculator was built into a mobile ad unit to minimise the steps when comparing prices and ultimately booking a test drive. The ad unit also featured an inbuilt API that directed consumers to the nearest Hyundai dealership. The ad unit was specifically designed for mobile devices, relying heavily on UX principles to create a seamless and visually pleasing experience.

The individual's unique and anonymous device ID was collected allowing the display of hyper-targeted deals to people who were in-market for a Mazda or Toyota and push consumers away from these competitors into Hyundai dealerships. The location of these devices were monitored, identifying if they later appeared in a Hyundai dealerships and re-targeting them again with appropriate mobile ad units.

Finally, using a third-party mobile GPS tracking provider, it was possible to track the movement of users between dealerships, allowing better measurement of the ad unit's impact on converting a user across to Hyundai from a competitor dealer.

This solution was less about being in market at the right time of year, day or week, but the right moment in the consumer's personal path to purchase.





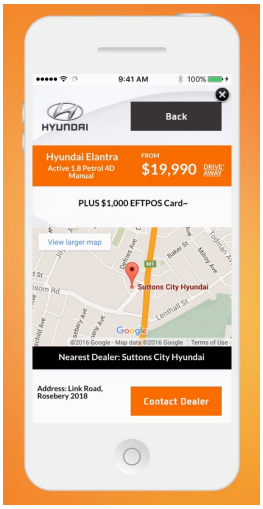
THE RESULTS

"Dealer Stealer" was an industry-first technology stack that took competitive advertising to a whole new level in Australia.

By disrupting consumers in competitor dealerships with Hyundai's value for money pricing, Hyundai was put into consideration at this crucial moment in the path to purchase. This allowed a shift in the perception of Hyundai as a second-choice brand and enable it to be viewed on par with competitors.

The post-campaign media results were extremely positive. By mapping the locations of 115 Mazda, 282 Toyota, and 152 Hyundai dealerships, it achieved:

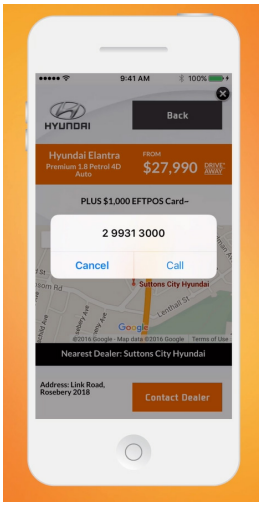
- A click-through-rate 50% higher than the industry average.
- 815,000 unique eyeballs viewing the ad unit.
- 41,000 people reconsidering Hyundai as an option.



Year-on-year operating conditions were similar. This strategy was deployed amid a price promotion and media buy that reflected the previous two years but results were markedly different.

Hitting consumers in the most crucial decision-making step, Hyundai was able to steal 11,000 people from key competitors (Mazda & Toyota).

The solution not only overcame the brand issue of getting on the consideration set, but also the category issue of declined dealer visitations, forming a truly innovative and business orientated solution.



GLOSSARY OF ADVERTISING TERMS USED IN THIS PLAYBOOK

First-party data: Data and information that you own (as the first party) and collect through your websites, CRM, mobile apps, customer interactions etc.

Third-party data: Data and information you gain access to via external sources that have no direct relationship to you (and therefore act as a third party).

Ad Exchange: An **Ad exchange** is a technology platform that facilitates the buying and selling of media advertising inventory from multiple ad networks, in real time.

API: An **Application Programming Interface** allows software programs to seamlessly interact with one other.

ATD: An **Agency Trading Desk** is a dedicated trading team within an ad agency that executes online media buying as a managed service.

Beacons: Beacons are small devices that transmit small amounts of data via Bluetooth Low Energy (BLE) wireless signals, up to 50 meters.

Cookies: A cookie is information (a small text file) that a site saves to your web browser. Cookies make the personalisation of your web experiences possible as they help sites remember items in your shopping cart, your log-in name and your preferences. Other cookies may be placed in your browser by third-party advertising companies to help deliver the ads you see online. These “third-party cookies” may be used to “remember” parts of your online activities to deliver ads tailored to your interests

Digital Fingerprinting: Digital fingerprinting is the identification of large data files or structures using truncated information. A fingerprinting algorithm is one that reduces a larger data set to a very small data set, sometimes called “a bit string”, to promote efficient identification and search protocols

DMP: A centralized **Data Management Platform** that allows you to create target audiences based on a combination of in-depth first-party and third-party audience data; accurately target campaigns to these audiences across third-party ad networks and exchanges; and measure with accuracy which campaigns performed the best across various segments and channels.

DSP: A Demand-Side Platform is a buying interface into advertising exchanges, enabling advertisers to bid for and purchase ad inventory in real time.

GPS: The Global Positioning System (GPS) is a satellite-based navigation system made up of at least 24 satellites, which circle the Earth twice a day in a precise orbit. Each satellite transmits a unique signal and orbital parameters that allow GPS devices to decode and triangulate its position on the Earth’s surface within 30 meters or less with signals from three of these 24 satellites.

IP address: An IP address (Internet Protocol address) is a unique identifier assigned to each connected device on a network.

Look-a-like modelling: Allows marketers to build larger audiences from smaller audience segments by finding other people who also show similar behaviours as their core target customers. In theory, they will reflect similar characteristics to a benchmark set of characteristics from the original audience segment.

Near-field communication (NFC): A set of communication protocols that enable two electronic devices - one usually a portable device, such as a smartphone - to establish communication by bringing them in close proximity. NFC devices are used in contactless payment systems, similar to those used in bank cards (pay-pass/tap systems) and electronic ticket smartcards.

SDK: A software development kit, which is a programming package that enables a programmer to develop mobile applications for a specific platform.

SSP: A Supply-Side Platform is a selling interface into advertising exchanges, enabling sellers of digital advertising to have buyers bid for and purchase their ad inventory in real time.