The Future of Analytics in the World of Insurance

Introduction

In this article, we look at the increasing importance of data analytics in the insurance industry and consider what insurers need to consider to ensure they extract value from this growing space and how they can avoid getting left behind. We also take the opportunity to introduce Finity's new big data product, Defin'd, and highlight how it can benefit the insurance industry.

This article looks at the following:

- The current but limited use of analytics in the insurance industry
- Where else in the insurance value chain can analytics add value?
- What should insurers be focusing on now?
- Navigating privacy issues
- Introducing Finity's "Big Data" and analytics product - [Defin'd]®.

How analytics has become a core part of insurance

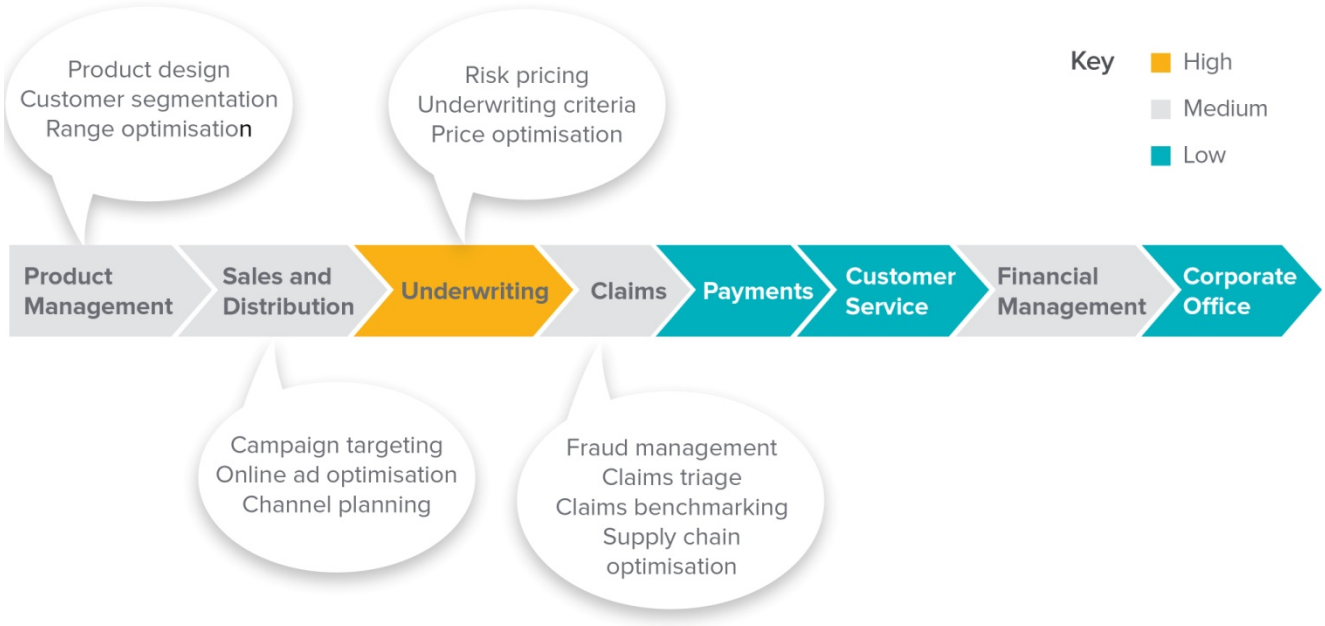
Data has long been an enabler of successful insurance businesses

Insurance has always been a data driven business. The complexity of its use has evolved with technology, techniques and out of competitive necessity. From product design, to pricing, to claims triaging and even higher level risk appetite setting and capital management, the use of statistics and robust analysis has long been a key enabler of successful insurance businesses.

Insurers have also been in a privileged position of knowing a relatively large amount about their customers thanks to detailed policy application forms. The power of the data captured, combined with the motivating force of adverse selection, has resulted in insurers developing significant advanced analytics capabilities to support their product pricing initiatives. Over time, many of the analytical capabilities developed for technical and tactical pricing have been migrated into data driven decision support initiatives in underwriting and other areas of the business.

In a similar vein, more recently, some insurers have invested in the use of claims data to identify and manage fraud risks within their business. Notwithstanding the above, historically analytics played a relatively narrow role in the insurance value chain.

Role of analytics in the insurance value chain



Source: Finity

We see immediate opportunities for expanding and deepening the role of analytics across four key areas

- product management
- sales and distribution
- claims
- customer service

Progressive thinking companies have identified that the greatest potential to transform competition is through commercialising data, through analytics and through data sharing in the private and public sectors. The Lateral Economics report found that opening up further access to public sector data could add around $16 billion[1] annually to the Australian economy. This suggests there is an opportunity for insurers to use big data and analytics to unlock significant value.

The changing insurance landscape

"Personalisation" is the mantra of insurers today

With the maturation of digital business infrastructure, the analytics opportunity set has changed drastically. Gone are the days of one size fits all customer service and marketing – "Personalisation" is the mantra of insurers today. Fraud analytics is becoming a vital part of the payment integrity and internal audit functions. More and more insured assets are now connected to the Internet of Things (IoT), creating new opportunities across underwriting, claims management and product design at a minimum.

So where might things be heading? What role can analytics and data driven decision support play for the insurers of tomorrow?

Personal Lines

This is perhaps the area with the most far-reaching change to come in the short to medium term. While insurers, relative to their financial services peers (such as banks), have led the way in pricing and price optimisation sophistication they seem to have lagged in other areas such as sales and customer service.

However, that is starting to change, as evidenced by a number of recent initiatives, locally and abroad:

- The launch of P2P insurance businesses such as Lemonade, friendsurance and Guevara
- The use of drones to aid with claims management in remote and disaster-struck areas
- The rise of usage based insurance in the form of telematics (for Motor insurance) and customised products like Trōv
- The launch of digital insurers such as Oscar, which focus on greater engagement with customers, making the cost of services transparent and directly rewarding positive health behaviours
- Major collaboration initiatives to bring together disparate datasets to form a "single customer view"
- Address-based risk pricing as geospatial analytical capabilities have evolved.

Undoubtedly, there is more to come. We explore some of the broader drivers of these initiatives in the "Digital Disruption" article but, from a data and analytics perspective, there are certain common themes supporting these initiatives:

- Easier access to more data
- The ability to capture more types of information, more often, and more cost effectively
- Computing technology that can store, process, analyse and visualise large volumes of data very quickly.

The initiatives observed show a trend towards:

- Greater sophistication of analytics: supporting pricing and underwriting efforts, as statistical and machine learning methods evolve and computing power allows more intense computations to be performed
- New technologies: for insurers to connect with customers and their insured assets
- Greater personalisation: of products and services, but also customer experience
- Greater online engagement: consumer preference shifting towards online methods of connecting.

Insurers need to "update" services in line with digitally enabled customers

Drawing upon these observations we believe that delivering products that meet consumer demand, starting to change the outdated services in our now

highly connected world and delivering more relevant services will dramatically help create loyalty and trust from insurance customers.

Commercial Lines

Commercial insurance has always needed to take a slightly different approach. Information is more limited, and disparate. Risks are much less homogenous than personal lines. Claims tend to be bigger, less frequent, and more volatile in nature. The role of analytics has been to work with high level information as well as very specific data points about a particular risk, to help underwriters make decisions. As a generally intermediated channel, the role of digital technologies has not been customer facing either, with most insureds interacting with the insurer via brokers.

However, things are also evolving in commercial insurance. Newer plant and equipment comes complete with connected sensors. There is also an ability to retrofit IoT sensors which gives insurers the potential to access new and live information about insured assets. The Government is also making more and more data available that can help insurers understand and contextualise their policyholders' physical surrounds. These developments will have far reaching implications for pricing and underwriting but also claims management as well as customer service more generally.

While we believe that the opportunities for commercial insurers are significant, we think that the industry is only at the start of this journey of change. We consider the opportunities around personal lines to be much more urgent, and in the rest of this article we focus primarily on the personal lines market opportunities.

IoT opportunities for Commercial Lines potentially game changing, but will take time

What should Insurers be focusing on now?

Looking at the emerging trends behind insurance innovation and disruption, we believe that insurers should focus on the following over the next few years:

Make customers (and customer data) core

The success and excitement behind many insurance innovations has been built upon being responsive to customers and putting them and their needs front and centre. From UBI models to Trōv and P2P insurance, the objective has been to make insurance simpler, more affordable and more transparent to customers.

The customer must be at the core of any data strategy

The key focus for insurers should be to get a better handle on who their customers are, what their needs are and how the insurer can best serve the varied needs of all the customer "lookalikes" they wish to serve. Note the distinction here from "individual" customer. We believe the "segment of one" objective that many in the market talk about to be somewhat of a fallacy. The reality is that we are still a long way from individualised products or service. Insurers are, mostly, still getting a handle on how to segment their customers into like groups, let alone getting down to a segment of one. Regardless, the foundation of such an objective must be what's commonly referred to as the "single customer view". That is, bringing together into one place, the disparate sources of data that exist through a variety of insurance systems that typically reside within an insurer. Good quality, consolidated data about customers is key to being a customer-centric organisation operating at the level of customer service expected in the digital age.

Develop an analytical strategy to better understand and target your prospect base

Insurers need a data strategy to better understand prospects

While insurers know a lot about their customers and spend a lot of time understanding this in detail, very little is typically known about the universe of "prospects" – an insurer's potential future customers.

Thanks to the ability to extrapolate claiming behaviours and ask prospective policyholders lots of questions, insurers are well placed to make pricing decisions about these customers. However, there are opportunities to improve lead generation and targeting of new customers:

- Having a granular view on segment level market share
  - Which market and customer segments are you strong in?
  - Where are you weak?
  - Why?
- Using market intelligence for identifying
  - Where you need to protect
  - Where you can grow
- Understanding the customer types in each group
  - In terms of their needs, what they value and the competitor offer set.
  - Prioritise them according to the expected value to your business.
- Focus on delivering what your prospects are demanding, and setting yourself apart from the competition.

These insights cannot be gained solely from an insurer's own data. External data from the ABS and Census are a good starting point for gaining an understanding of the broader population and prospect base. However, the evolution of data as an asset has given rise to a multitude of additional options for external data. More and more data players are emerging and organisations as diverse as airlines, credit bureaus, banks, supermarkets, social media networks, market research firms etc. are making available data about broader customer behaviours. These will be useful, not just for enriching pricing models, but also (and more immediately) for providing insights about prospects. Who they are, how they think, what media channels they engage in. All of this can help insurers enrich and refine their go to market strategies, delivering greater marketing ROI.

Consider data as an asset for customer experience

A common theme with many of the new players and services coming to market has been the focus upon user experience. From Trōv's easy to use and well-designed interface to Oscar's focus on rewarding good health behaviours, and open reporting on provider behaviour – the user experience is becoming a bigger focus for insurers. The initiatives are improving both the applications and channels by which insurers engage with customers as well as the customer claiming experience.

We see a number of opportunities here:

- Simplify the new business binding process: The policy application can be an onerous step for prospective customers to go through – insurers should consider how their own data and external data can be used to reduce the number of questions prospective customers need to answer
- Give sales staff useful customer insights: Use the wealth of data that is available to develop rich customer and prospect segments. Operationalise these insights into front-line systems so that sales staff can prioritise efforts towards high value, high propensity customers and tailor the offer and supporting selling points to the customer
- Use data to provide insights back to customers: The lack of customer engagement between policy binding and a claim is a significant challenge for building customer loyalty. By sharing useful insights back to customers insurers can start to bridge this gap and help to build a greater affinity between the insurer and the customer – an essential outcome in a world where customers' propensity to switch/shop around is growing strongly
- Use analytics to improve the claims experience – the claims experience can be a make or break moment for customers. A good claiming experience can win an insurer a lifelong customer and create a "net promoter" to other potential customers. Insurers should be putting the wealth of claims data they have available to work on this front. Claims data can provide a foundation for supplier monitoring and optimisation to ensure cost and quality levels are maintained to acceptable standards. For more serious bodily injury type claims, claims triaging efforts can make a hugely positive difference to recovery outcomes.

Insights from data can be used to improve the user experience

We believe insurers have made some progress on these fronts, but there remains a huge opportunity to continue making improvements on the user experience.

Embrace machine intelligence

Traditional analytical techniques, such as GLMs, are still the biggest area of focus for many insurance analytics teams. These techniques have been honed over many years for risk pricing purposes and are tuned to deliver highly accurate risk price predictions. However, the time and effort involved in training and tuning these predictive models gives rise to a barrier to broadening their use. Often the cost and time associated with a predictive modelling exercise can be a limitation when insurers look to extend these analytical techniques into other parts of the insurance value chain.

However, the rise of machine learning methods has dramatically shifted the landscape. Machine learning methods can shortcut much of the labour intensive hypothesis driven analysis involved in traditional statistical techniques. We've seen them develop into a very powerful and efficient way of refining risk pricing models. Not only that, but the faster path to insight can help free up time for other analytics projects to be taken on. Certainly, machine learning methods are being embraced in the banking and marketing industries. While there are challenges in using these techniques for insurance, we believe that, in the long-term, organisations using machine learning will be able to do a lot more with the limited resources available.

Machine learning methods can accelerate path to insight and action

Navigating privacy issues

Big data analytics has changed the way we identify trends, behaviours and challenges, as well as how we identify business opportunities. However, some big data comes coupled with privacy risks.

For companies this means incorporating privacy into strategic planning, making privacy a governance priority, and taking a 'privacy by design' approach to integrate privacy management into projects and practices. The guidelines within the Australian Privacy Principles outline key requirements and encourage the implementation of the Privacy Management Framework. This is a four step process.

- Step 1: Embed: a culture of privacy that enables compliance
- Step 2: Establish: robust and effective privacy practices, procedures and systems
- Step 3: Evaluate: your privacy practices, procedures and systems to ensure continued effectiveness
- Step 4: Enhance: your response to privacy issues

Privacy impact assessments are a must to manage this risk

Even where personal information is appropriately de-identified and mitigation strategies are implemented in accordance with Australian Privacy Principles there remains the risk of re-identification. Re-identification occurs when an entity uses a variety of non-identifying information in such a way that analyses or creation of new information means an individual becomes identified or reasonably identifiable. So the process you implement must also ensure personal information is not re-identified during big data activities before and after analysis.

While the regulation of privacy will continue to evolve, especially as technology advances, companies need to step up to the challenge of taking control of privacy management. In doing so, this will enable companies to effectively leverage the enormous opportunities their big data presents and to implement their business strategies with commercial confidence.

A further consideration for insurers is how far they are willing to push the use of personal information, even when all the consents and legal requirements are in place. Customers will have a certain tolerance for how "targeted" insurers can be, and insurers must resist the temptation to target in a way that could be construed as "creepy", and therefore result in customer backlash. Some of the banks have already seen some public backlash over this very issue.

Where to start

The widespread adoption of new consumer technologies has created new demands for and expectations of insurance solutions and interaction channels. To date incremental innovation has assisted insurers deliver to a greater percentage of new customer expectations. Now, with the demands of the market, usage-based models, IoT, wearables and autonomous cars, insurers have an opportunity to develop more innovative products, and to experiment and diversify with new business models.

There are opportunities for start-ups or new entities creating disruptive approaches through easier access to open source development frameworks, scalable cloud computing and on-demand development, lowering the technology barriers to entry. New players who can innovate quickly are taking advantage of these niche opportunities, improving on products and services that incumbents have not sufficiently improved or evolved.

Innovate or lose competitive advantage

Companies who fail to capitalise on the vast amount of customer transaction data, social media, web analytics and connected device data, risk missing out on customer insights and critical market intelligence, placing them at a competitive disadvantage.

Data

There are growing commercial opportunities in identifying how to commercialise government and private industry data by companies. The Australian Government is changing their Public Data Policy and releasing more non-sensitive public data for entities to leverage and create value from. The economic value that could be enabled through open data (including government and private sources) is estimated to be up to $4 trillion[2] per annum globally.

We believe that industry has passed the tipping point for believing in the value of big data and advanced analytics in Australia. But where to start? We believe it is "the front-line" where the industry needs to direct its focus initially. Companies need to apply the insights obtained from big data and analytics to the operational delivery of the company's services and products. The key focus on should be on:

- Improving their customers' experience – it is essential for companies to understand the journey consumers went on to purchase the insurer's product and to continue to optimise this.
- Leveraging and realising the outcomes that will create competitive advantage, enhance customer service and support and grow customer acquisition and retention.
- Working out how to co-exist and leverage these communication channels offers an enormous opportunity to engage with potential customers.

Avoid social media channels at your peril

Social media is, perhaps, the elephant in the room. Companies may have the desire but many resist interacting with the social on-line world which is growing exponentially. The challenge may be to take action rather than be passive in this connected world, especially when 75%[3] of all social media is now on Facebook.

We believe it is commercially questionable to disregard social media as an important channel. There are now 15 million[4] Australians active on Facebook each month who, every day spend on average 1.7[5] hours checking their feeds. It would appear that social media is simply too big to ignore.

Feed into business

Company priorities need to focus on the skills needed to drive adoption of these big data technologies. The initial hype around big data is being channelled into predictive and machine learning capabilities which are driving the market transformation. Directing the focus on how to gain insight and

uncover patterns will identify opportunities that can be acted upon, more rapidly.

Upskilling and engaging analytics staff critical

Just how astute a business is in leveraging data depends on whether it has the people equipped, and skilled enough to use, the tools required to understand, manage, analyse and operationalise the volume of information available. Upskilling existing employees will result in a dramatic upwards shift in knowledge and IP across the business. Engagement and outcomes are generally better if staff become part of the journey rather than being left watching the Big Data team take on the paradigm.

It is estimated, in Australia, that there may be a shortage of 100,000[6] or more workers possessing critical analytical skills capable of using big data to make effective decisions. Preparing employees will require a definite change in thinking for many companies. An open data approach is proving to have merit rather than "locking the data away" to be used only by the privileged few.

Exposing back to decision makers

A key outcome from leveraging big data is the transparent insight that becomes available to decisions makers.

Buy-in from decision makers – as well as analytics staff – key to success

The takeaway is that we have to understand which data matters to key stakeholders — both within and outside the company — and also be capable of and willing to challenge assumptions by looking at the data from multiple perspectives. This can only be achieved with certainty when the relevant information is available to the company broadly and in particular to the right people who have practical and commercial experience.

Now with this more encompassing view, businesses can engage with customers and have them see that the company is taking steps to really understand them and change their outcomes for the better.

What traps are there?

The first key to avoiding the big data traps is to know what they are.

Success not all about ROI. Customer and staff engagement just as important

It is important to become informed and to be open to working with specialist big data strategic and solution partners, relevant for where an insurer is in the process of the big data journey. This will allow the company to progress through the process reducing the hurdles, while still ensuring that internal teams are in a position to make sound decisions and are evolving their skills along the way.

Big data is certainly not a fad, but it cannot replace personal relationships where a more finessed and intuitive strategy is required. It is infusing technology and business delivery as a process, so having people aligned initially from the top down is an important initiative an insurer should have in train.

Big data assists key decision makers by allowing them to have a more integrated view of the business, market, competitors, customers and operations which in their own right are all critical to the business success. It cannot replace all decision making.

How to measure success

A practical measure of success on investment into big data is to see this information becoming part of the workforce's everyday way of business. Rather than BAU having the word "boring" as part of the acronym, employees utilise the insights to make their work far more interesting where they are more productive and can assist the business and customers more effectively.

Equipped employees with better access to analytics and more informed insight are empowered decision-makers and businesses will reap the benefits.

Finity's Big Data and analytics product – [Defin'd]®

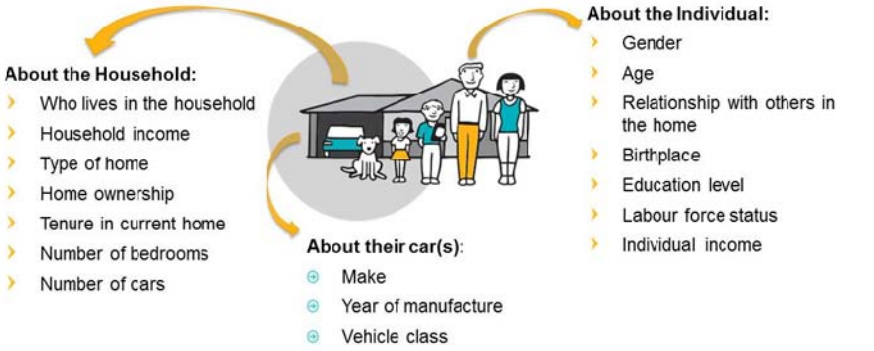
In this article we have discussed the use of external data and the navigation of privacy concerns. While personal and private customer information offers many useful insights, we also see businesses using non-private non-personal datasets to enrich their customer view. Finity has a unique offering in this space, which we outline below – it is called Defin'd. Defin'd is a rich customer dataset, that circumvents the privacy challenges associated with external datasets, whilst still offering highly valuable, population normalised, customer insights.

Defin'd is Finity's Big Data product which provides a small area market representative view of all Australian households, individuals and motor vehicles.

Core data asset

Finity has built up this granular database of 24 million interconnected people using our own advanced analytical techniques on Census, ABS and other proprietary data sources. The data behind Defin'd comprises three databases of people (24 million rows), households (9 million roes) and motor vehicles (13 million rows). Each database is linked to the other by a unique household identifier.

Household attributes available in Defin'd



Source: Finity's Defin'd

Prepopulated demographic and psychographic segmentation

Each person and household is easily described by life stage, wealth and interesting geographic features of the local area. We also have indicators of

where on the spectrum each person sits with respect to spending, adventurousness and societal attitudes and behaviours.

Defin'd Customer Segments

Source: Finity's Defin'd

Bespoke add-ons

We can include additional people and household traits as required based on our unique ability to extrapolate responses to a 450+ strong question consumer survey out to the entire population.

Ability to build bespoke behavioral models

Source: Finity's Defin'd

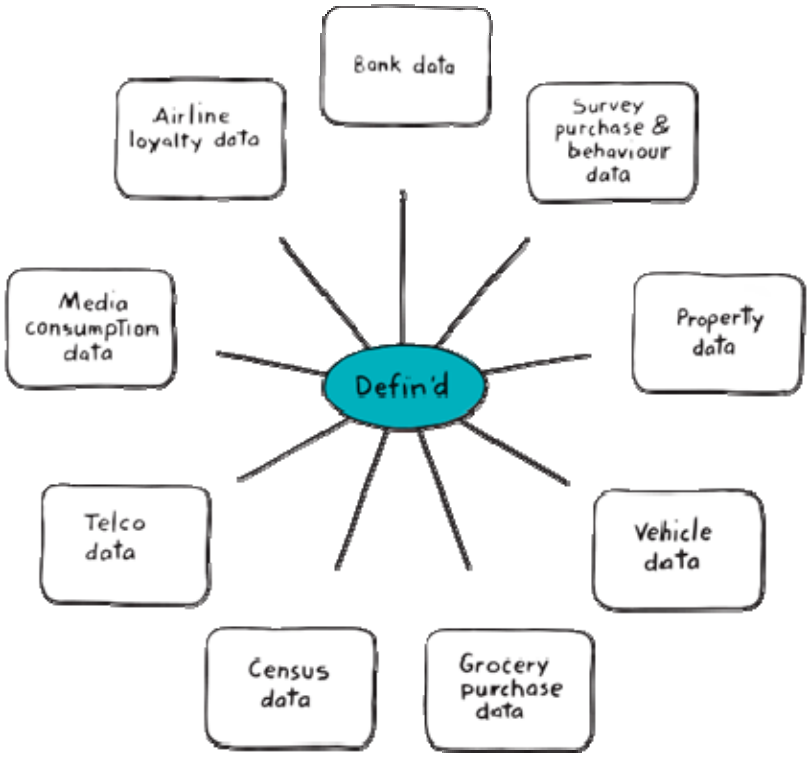
Use cases

Why might a company use Defin'd. We see a number of uses which include, but are definitely not limited to the following:

- Compare your customer base to determine pockets of strong and weak market penetration by customised geography, demography and behaviour segments.
- Understand drivers of acquisition or retention better by rounding out what your data tells you about your customers.

- Avoid privacy concerns by joining multiple data sources together that have been de-identified at the source. Defin'd becomes the hub in this model.
- Find where prospects that look like and act like your preferred customers are geographically concentrated.

Role of Defin'd in external data landscape



Source: Finity's Defin'd

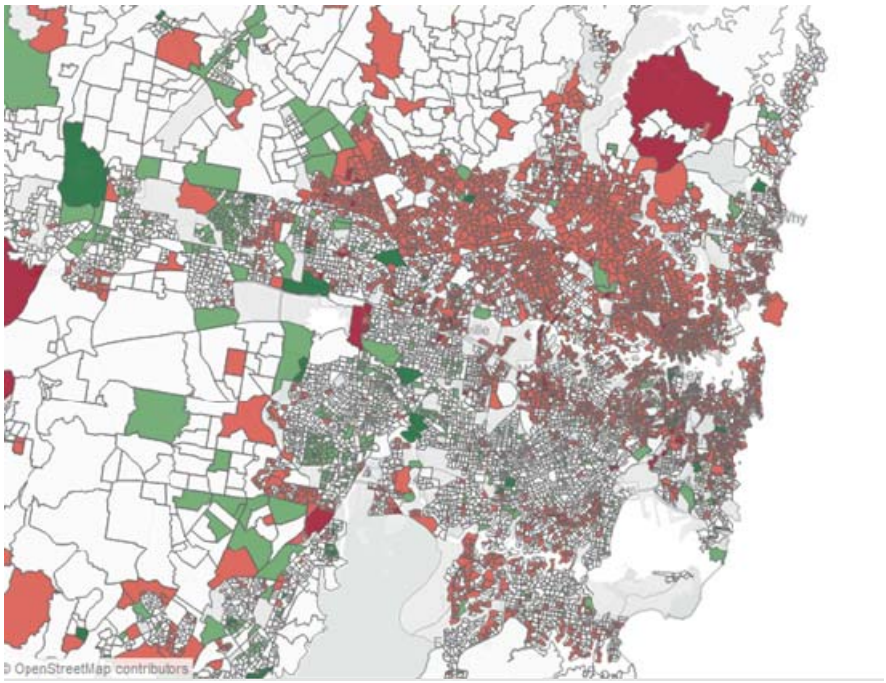
Case study

If part of your business strategy is to pursue profitable top line growth, one of the first steps is to identify which geographic, demographic and psychographic segments are of high value to your business.

Using Defin'd we have identified individuals and households that have a relatively higher or lower propensity to consider changing from their current insurance company.

In this example we have mapped the Sydney metro area.

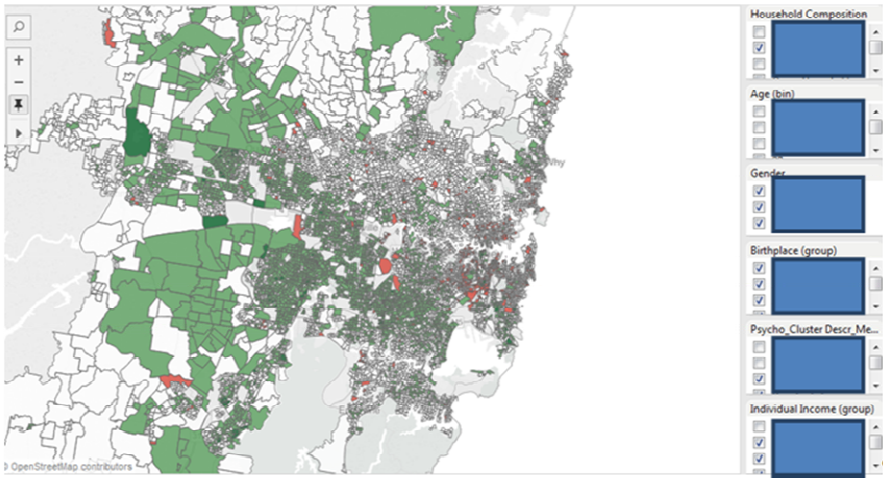
Propensity to shop around for insurance



Source: Finity's Defin'd

The predominance of red colouring suggests that there is not that much differentiation between regions and that, on balance, it might be difficult to shift people from their current insurer. However, with a couple of key strokes we can see that there definitely are demographic segments that are candidates for switching and this is shown in the chart below.

Propensity to shop around for insurance (specific market segment)



Source: Finity's Defin'd

The predominance of green and the dappling by geographic region provides a clear indication that a well targeted strategy for acquisition has a fighting chance of working.

This is just one example of how Defin'd can help users find signals and insights that can aid their customer acquisition and retention strategies, which might remain hidden in other tools that don't have the same drill-down functionalities.

Note:

- *1 "Open for Business: How Open Data Can Help Achieve the G20 Growth Target", Lateral Economics*
- *2 "Open data: Unlocking innovation and performance with liquid information", McKinsey Global Institute*
- *3 https://www.brandwatch.com/2016/05/47-facebook-statistics-2016/*
- *4 http://www.socialmedianews.com.au/social-media-statistic-australia-may-2016*
- *5 http://economics.com.au/2016/06/05/the-benefits-costs-of-facebook-and-how-to-maximize-surplus-to-self*
- *6 "Australia's Digital Pulse: Key challenges for our nation – digital skills, jobs and education", Australian Computer Society, 2015*