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Gold diggers

Mobility services are a potential gold mine for data-hungry tech companies. That being the case, Andrew Bunn asks: what exactly happens when giants such as Google and Amazon decide to get their teeth into MaaS?

There are many different perspectives on Mobility as a Service (MaaS), with many different views on what the latest and future applications of technology are going to bring to transportation infrastructure. However, there is one question that does not seem to come up at all. Up to now, MaaS-related companies and start-ups have operated in relative peace, often invoking the somewhat cheesy portmanteau 'coopetition' to describe their relationship. The mainstream tech industry has largely left the fledgling field to itself, which begs a question few seem willing to ask: what will happen when one of the technological giants, especially Google, inevitably takes a real interest in MaaS?

No strangers

The companies in question are no strangers to involving themselves in new and rising fields. Google, Amazon, Tesla, and others like them are all growth companies, a relatively new brand of business that has distinguished the technology industry for the past few decades. These companies expand rapidly, acquiring smaller ventures and disrupting markets to keep positive cash flows while focusing very little on profit. Amazon's takeover of Whole Foods last year signalled its intention to start expanding into the bricks-and-mortar retail world after its profit finally exploded into the billions for the first time. Elon Musk, CEO of Tesla among other growth-based tech companies, candidly states: "Tesla has never made an annual profit in the almost 15 years since we have existed." Making hundreds of acquisitions every year, the mainstream tech industry constantly expands into new markets and provides a stable platform for innovation and invention.

One particularly relevant example of this rapid expansion was the development of the home automation market several years ago. Much like MaaS, smart-home automation had been long discussed but never implemented due to technological barriers. As those barriers began to drop, systems in smart lighting and home security began to appear through start-ups.

Amazon quickly took control of the market in 2015 with the release of the Echo devices and accompanying artificial intelligence 'Alexa', designed to interoperate with the various smart-home devices cropping up. After Amazon had proved the market's viability, Google responded with Home, directly competing with every original Echo model.

Swallowing up

Two years later, many of the third-party devices that had once advertised Alexa compatibility now featured 'Works with Google Home!' across their homepages, and Home sales passed Echo's numbers for the first time in the first quarter of this year. Google's ability to enter a market late and almost immediately match or surpass the established competitors exemplifies the fast-paced, aggressive nature of growth companies and the markets they swallow up.

The home automation example has clear implications for MaaS. More than any product, technology, or service, Google and its peers are in the data business. User-specific personal data is the lifeblood

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that fuels the tech industry, and MaaS is an industry heavily laden with data. Users of the mobility services will leave data trails everywhere they go, from trip times and mode choices on the micro scale to multimodal congestion and network efficiency on the macro scale. This is a potential gold mine for data-hungry tech companies, making it a likely target for expansion as MaaS becomes a more popular and profitable field.

My original thought questioned what will happen when the mainstream tech industry becomes involved with MaaS. The truth is that this is already happening, albeit in fairly subtle ways. Google Maps is easily the most popular and user-friendly navigation app on the market, but Maps is also beginning to show the kind of multimodal integration often advertised by MaaS companies and their products. Walking and biking have been part of the app for years, but new modes such as ride-share have become increasingly available recently.

Natural extension
Users can now call an Uber or Lyft directly from the Maps app, as well as see prices and estimated time of arrival for different classifications such as UberX or UberXL. The Google Transit Partner Program is also growing, granting the app seamless integration with the transit systems of many cities. Users can choose transit as their mode, and Google will tell them which buses to use and when metros will arrive. As recently as May of this year, Maps partnered with New York City's bike-share program, Citi Bikes, to show users which bike-share stations are open, whether they are full, and even how many bikes are remaining at the station. This is exactly the type of application many MaaS companies are striving to create, but with the market penetration those companies cannot hope to match without offering something Maps does not.

Despite having its foot in the door through Maps, Google has yet to truly enter the MaaS landscape. However, it seems a natural extension of Google's interest in the Internet of Things (IoT) and intelligence (AI), since MaaS largely relies on internet-based hardware and AI data crunching. What does this mean for the companies already invested in MaaS systems? There are pros and cons to the mainstream tech corporations getting involved in a new industry. Some start-ups may hit the jackpot, bought by a larger company and given a stable platform and larger budget to push their innovation further.

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More established MaaS firms may struggle if they find their business appropriated by proprietary versions of their products pushed by the larger tech firms. Continuing the comparison with the home automation and IoT industries, Amazon recently acquired Blink and Ring, both well-known smart-home start-ups. These companies, as well as the equivalent Google acquisition of Nest, have been able to continue independently while operating under Amazon's stability and aggressive marketing. Meanwhile Alarm.com, another home automation company, is fighting an uphill battle as a third-party seller with products in direct competition with Nest and Ring. Without a parent company, many third parties have been left behind in the highly competitive tech market.

Cut-throat industry
How this plays out in the MaaS world remains to be seen. Google's partnership with NYC's Citi Bikes program may signal a move into the bike-share world, and bike-share start-ups have proven there is a market for private programs that Google may want to acquire. Nearly every tech corporation, from Intel to Apple, is developing connected and autonomous vehicles (C/AVs) which will be a big part of MaaS in the future through services like Uber and Lyft. Perhaps most importantly, companies like Google can provide the data management infrastructure that many ITS and MaaS companies need, on a scale that is simply out of reach for most start-ups and small to medium businesses.

The most important thing for the MaaS industry right now is that its members prepare for a much more competitive future. It is vital that we find a way to preserve the 'coopetition' culture even when MaaS is swallowed by the aggressive, cut-throat tech industry. Sharing ideas freely has pushed the field forward and will continue to do so with events like *ITS International's* MaaS Market conferences. This is a great time for companies to be involved in the MaaS industry, with opportunities opening all the time and even bigger opportunities on the horizon - but things will not remain small for long. As the mainstream tech industry wakes up to the importance of transportation and the user data it creates, the growth companies will inevitably start snatching up companies and partnerships. Those currently investing their time and money into furthering MaaS need to prepare for this tidal wave, and be ready to ride it. **ITS**

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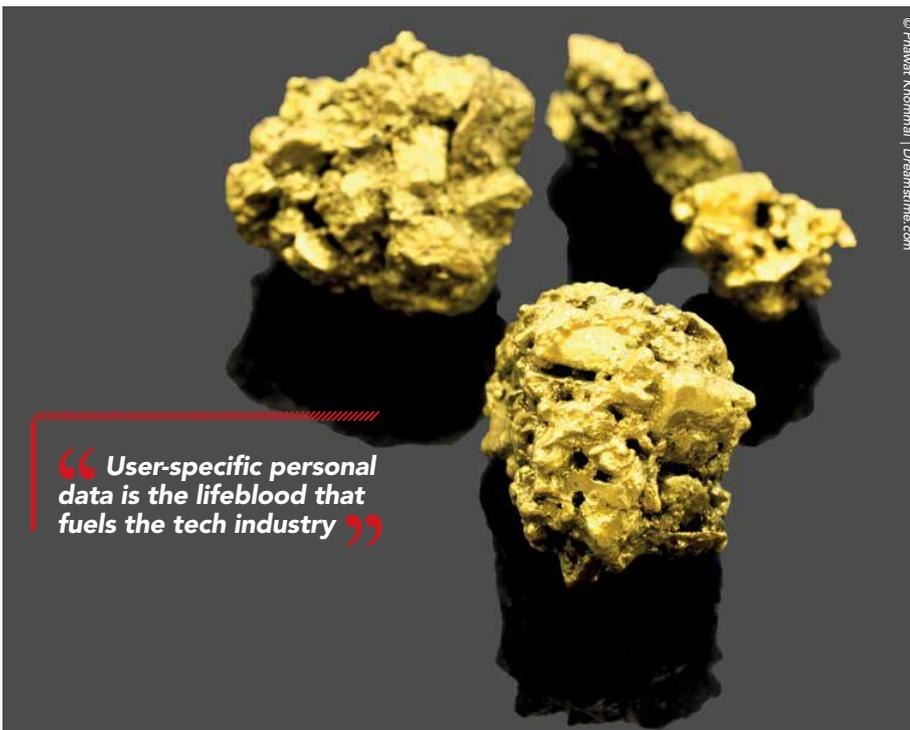
> **"User-specific personal data is the lifeblood that fuels the tech industry"**

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Andrew Bunn is a senior civil and environmental engineering student at Old Dominion University in Norfolk, Virginia. He has been engaged with the International Bridge, Tunnel and Turnpike Association for the past year after receiving the first IBTTA Foundation Award