Killing with context

Yesterday we looked at the library of information that is the internet and how we are shepherded through it by **librarians like Google and Facebook**.

Today we look at a tool used by these librarians. While it is used extensively by all libraries (including physical ones), we are interested most by how it is used by the government under the guise of "security". As the internet grows and our reliance on it increases, this tool will become increasingly well known, and ever more powerful.

Today we look at metadata.

Data begets metadata

The word meta means "beyond", or "after". Metaphysics, for example, distances itself from the scientific method and the study of actual physics, and asks more abstract questions about existence in general.

Metadata is similarly beyond data. It is data *about* data. Although the term was coined in 1968, it has existed in one form or another for hundreds of years. It summarises a collection of data, making it easy to put into context and categorise. For example, a note scribbled on the back of a photograph detailing when and where the photo was taken is metadata. If a randomer came across the photo, reading the metadata on the back would help put the photo in context. Were some in the business of creating a database of photographs, they could use this metadata to file it with photos of the same place, or with photos from that year, or both.

Metadata makes it easier to find anything – it is essential for organising large swathes of information. Before the internet, libraries used metadata in the form of cards which bore a book's title and author, when the book was published, how many pages it had, and a brief plot synopsis. These cards were kept in huge catalogues and could be used for assessing the library's inventory and in order to find specific books.

With the advent of the internet, the cards became obsolete, but the metadata remained and often so did the way it was organised. But the metadata, now uploaded on to online databases, is now much easier to explore and analyse as computers can browse and analyse metadata far faster than an individual. You can now make much more specific searches through a library's inventory.

These days, metadata of our own lives is recorded all the time

Where previously you would need to scribble on the back of a photo to record its metadata, these days the digital camera you are using is constantly recording it for you. Context for the photo like when, where, what it was taken with and sometimes even who is in the photo (through facial recognition software) is often automatically recorded on to the image.

Of course the automatic recording of this metadata (known as EXIF data for photos) can be switched off, or stripped from the photo after it's been taken, but most people don't bother – after all, they can use it to organise their photo album.

But so can anyone else. And were some else to come into possession of millions of other people's photographs, what a library they could create! The metadata already recorded on to the images would allow them to sort them all… without needing to ask for context from the owner.

But it goes beyond photographs. We generate metadata all the time. And if you can collect it all, an entire population's lives can be analysed. Their day-to-day exploits have already been placed in categories, which can be placed in a grand library. The context of each situation has been scribbled on the back of our phone calls, emails, videos, photos and text messages.

This is from Stewart Baker, general counsel to the National Security Agency (NSA): "metadata absolutely tells you everything about some's life. If you have enough metadata, you don't really need content."

"We kill people based on metadata"

Among other things, the NSA took metadata from phone calls which it retrieved from telecommunications providers such as Verizon – this metadata included the length and time of the call and who was connected to whom. This was used in conjunction with other metadata from multiple other sources such as Skype calls and social media activity as a means of identifying potential terrorists in the US. Huge insights into your life can be gained through these methods and were applied en masse to vast segments of American society (the resulting information was shared with our very own Government Communications

quarters). It was mass surveillance and many were rather angry at what they saw as their civil liberties being trampled.

Predictably, the metadata revelations were played down as much as possible by members of the Obama administration. It was "just" metadata, they said, and claimed the content of the calls were not recorded.

But a debate involving the former director of both the NSA and the CIA, General Michael Hayden, in 2014 made the subject quite clear: "We kill people based on metadata. But that's not what we do with *this metadata*," he declared with a smirk. Hayden was making the point that while metadata is used abroad to find targets who the US then assassinate, at home they use metadata to detect and prevent terrorist attacks. Hayden stressed that the potential for the state to use this as a tool of totalitarian control at home should not be entertained – these spying tools only ever led to the death of **foreigners**, never US citizens.

I can't say I feel reassured

The fact that much of the Obama administration, let alone US citizens, had no idea this was going on, and that it took a whistleblower like Edward Snowden to reveal this information, is worrying. Personally I don't see how a government could resist such power. And of course since then, the Vault 7 leaks from Julian Assange have revealed the CIA was taking these methods to the next level – more on that another day.

Some people think big brother comparisons to our intelligence agencies in the West are ludicrous – they are simply using all means at their disposal to ensure our security, they say. After all, failing to **evolve in the face of cyberwarfare** and cyberterrorism would be stupid.

But comparisons to big brother continue to be made, and I find them quite compelling; for these intelligence agencies unironically compare *their own abilities* to those of big brother, outside of the public eye.

A foreshadowing

On 22 January 1984, Apple released a commercial for its new Macintosh computer. It was aired on national television only once – during the third quarter of Super Bowl XVIII, where the Washington Redskins and Los Angeles Raiders battled it out for supremacy.

Directed by Ridley Scott, the ad depicted a world as displayed in George Orwell's *1984*: a colourless cold environment, where people marched in orderly lines and sat before a big screen in tight ranks. They gaze blankly at a face on the screen, which is giving a grand speech on collectivism. As the speech reaches a crescendo, a brightly dressed woman sprints into the theatre and throws a sledgehammer at the screen, destroying it.

A voice speaks.

"On January 24th, Apple Computer will introduce Macintosh. And you'll see why 1984 won't be like '1984.'"

You could write an essay on the irony of the ad by itself. The theatre and soulless attendees watching big brother on screen looks just like a present day Apple "keynote" conference, cult following and drab clothes included.

But what is both fascinating and alarming is the presence of the advert in a PowerPoint presentation given to NSA officials. The purpose of the presentation was to brief them on the new spying capabilities such as iPhone location tracking, which the NSA had developed.

The first slide shows stills of the Super Bowl ad, with the text:

"Who knew in 1984…"

The next slide shows an image of Steve Jobs holding an iPhone at an Apple conference.

"…that this [Jobs] would be big brother…"

The next slide shows photos of jubilant Apple fans having just purchased an iPhone.

"…and the zombies would be paying customers?"

The slides mocked the very citizens the agency existed to protect, while comparing the abilities of the agency to one of the greatest fictional enemies of freedom. Definitely the most memorable PowerPoint presentation I've ever seen – if you'd like to check it out, the slides are here. And here is the Super Bowl ad – definitely worth a watch.

The greater the internet becomes, the more metadata will spring into existence as a means of archiving all the data we keep creating – think of it as a container for the information you constantly create. Those who have access to these containers can use it to their advantage. As with anything in this age of the internet, those who can either analyse or direct the grand flows of information being generated end up wealthy, influential, or both.

In this age of surveillance and metadata, some people take radical steps to ensure their anonymity using cryptocurrencies like bitcoin to keep their transactions private. For more on the nature of cryptocurrencies and their potential, click here.

Until next time,

Boaz Shoshan

PS A penny for your thoughts? **boaz@southbankresearch.com**.

I've received some great feedback from yourselves in recent days – I plan on responding to as many of you as I can in the near future.