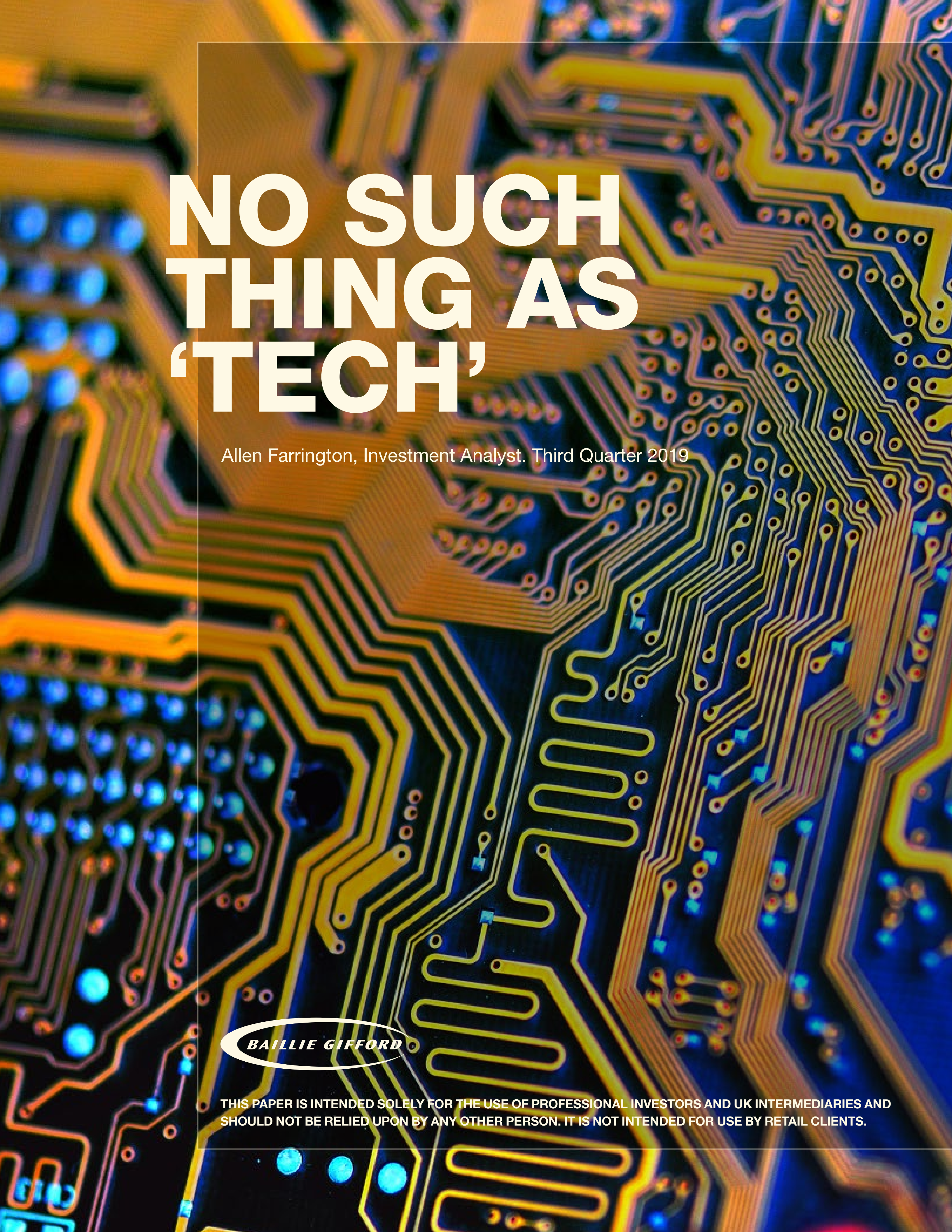

NO SUCH THING AS 'TECH'

Allen Farrington, Investment Analyst. Third Quarter 2019

BAILLIE GIFFORD

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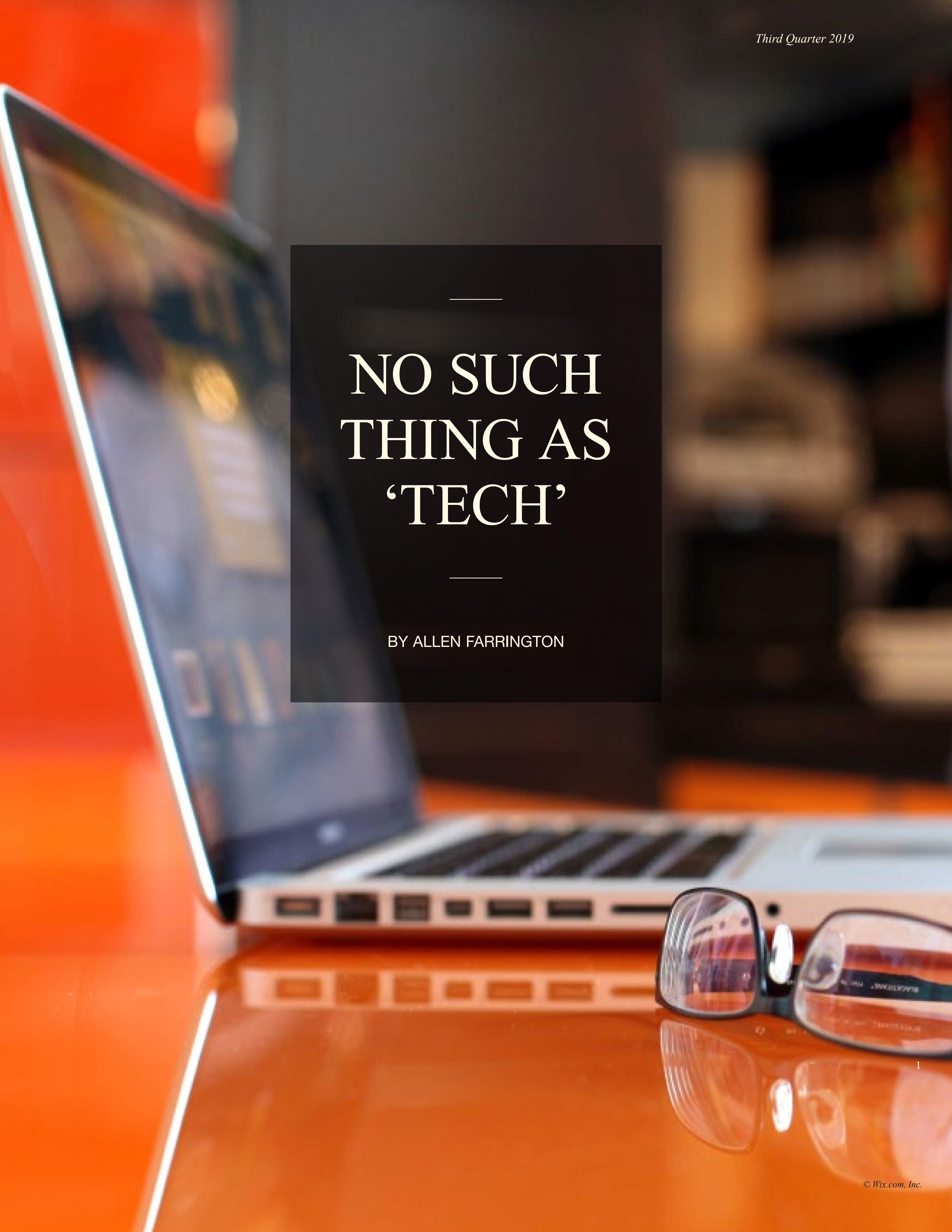

NO SUCH THING AS ‘TECH’

BY ALLEN FARRINGTON

TECHNOLOGY THEN AND NOW

After steady falls in their aggregate share, the top five stocks in the S&P 500 have surged to a combined 25 per cent of the index, leading the bull market into an historic twentieth year.

No, I'm not referring to Facebook, Amazon, Microsoft, Google, and Apple (FAMGA) which make up around 20 per cent of the S&P today. I'm not even recalling any time in the past fifty years. That opening snapshot dates from the Bryan Adams'celebrated 'Summer of '69', when the five big beasts were AT&T, General Motors, Exxon, IBM, and Eastman Kodak.

For an illustration of the impact of technology in the mid-20th Century, consider the following: AT&T used cutting-edge telecoms to operate a public switched telephone network – then the largest network in the world – connecting every home in the US and Canada.

General Motors continuously reinvented, at scale, arguably the most important consumer product of all time – with the key ingredient, gasoline, provided by Exxon – which was instrumental to the way we travelled and lived.

IBM and Kodak were, of course, household names and for many still are.

Clearly none of these companies competed directly. Consumers didn't have to choose between cameras and gasoline; businesses did not choose between paying the phone bill and buying a mainframe. We can tell they didn't compete just by looking at the sectors they were in: telecommunications, consumer discretionary, energy and information technology.

Granted, these sectors were not designated as such by S&P until 1999, but it is obvious how they would have been seen if the classifications applied.

The same kind of differentiation is roughly true of the FAMGA five. Amazon primarily runs a retail service and logistics network. Apple makes consumer electronics. Facebook sells targeted advertising on a social network. Google is a reference service that sells query-based advertising, which also owns YouTube, the most popular video service in the world. Microsoft sells operational tools for businesses.

Consumers didn't have to choose between cameras and gasoline; businesses did not choose between paying the phone bill and buying a mainframe.

© Bloomberg/Getty Images.

It's true that Google, Microsoft, and Amazon compete in the cloud computing business, but this is a small component of the revenue of each. Apple and Microsoft devices sell on Amazon's marketplace. Google and Facebook both sell 'advertising', but their tools are about as different as any two kinds of advertising can get.

By and large, the FAMGA companies are not in competition. And yet all are 'technology', we are told. But weren't the telephone, the internal combustion engine, and the film camera 'technology'? Aren't they still?

The point is that if everything is technology then potentially nothing is.

In a wide-ranging interview with the journal *Foreign Affairs* in the January/February 2015 issue, venture capitalist Michael Moritz said; "It's very hard to detach any form of entrepreneurial activity from technology, because whatever business you start is launched on some form of technology. You may just want to start a small bakery, but you're buying really good equipment, you're using software to run your business, you've probably got a website."

That website may well run on Wix, the Israeli company that allows users to create and host their own sites. The accounting may well be managed on Xero, a New Zealand firm offering cloud-based accounting to SMEs. Boosting capacity might involve an arrangement with Delivery Hero, a German online company, to deliver straight to customers? If the bakery is in China, it almost certainly accepts WeChat Pay and AliPay, the payment options provided by ecommerce and internet media platforms Tencent and Alibaba. If it is in Japan, GMO Payment Gateway is likely to be the connection to the payments ecosystem; in Argentina, MercadoLibre's Mercado Pago payments solution.

SOFTWARE IS EATING THE WORLD

All these companies count as 'technology', but as with FAMGA, they do not compete. It is inconceivable that a company that enables food delivery could take on a company that helps you with your taxes, or with one that facilitates card payments. The idea is absurd. Nor do they compete for resources or credit, nor do they share suppliers, nor are they subject to the same regulations. By no stretch of will or imagination are they in the same 'sector'.

But they do have one thing in common: software. In fact, 'technology' in finance seems only to refer to software – very different to what might have been said of AT&T, GM, and Kodak in the '60s. 'Technology' is both everything and one very specific thing. Why is this?

Venture capitalist and Netscape founder Marc Andreessen famously declared in a *Wall Street Journal* op-ed in 2011, "software is eating the world." He wrote: "my own theory is that we are in the middle of a dramatic and broad technological and economic shift in which software companies are poised to take over large swathes of the economy."

Andreessen cited one industry after another that is being 'eaten' by software. Indeed, it is hard now to argue that FAMGA, Baidu, Alibaba, Tencent, and the like are not, in some sense, 'software' companies. Their products are impossible to conceive of without highly advanced proprietary software. Are they in the same sector after all?

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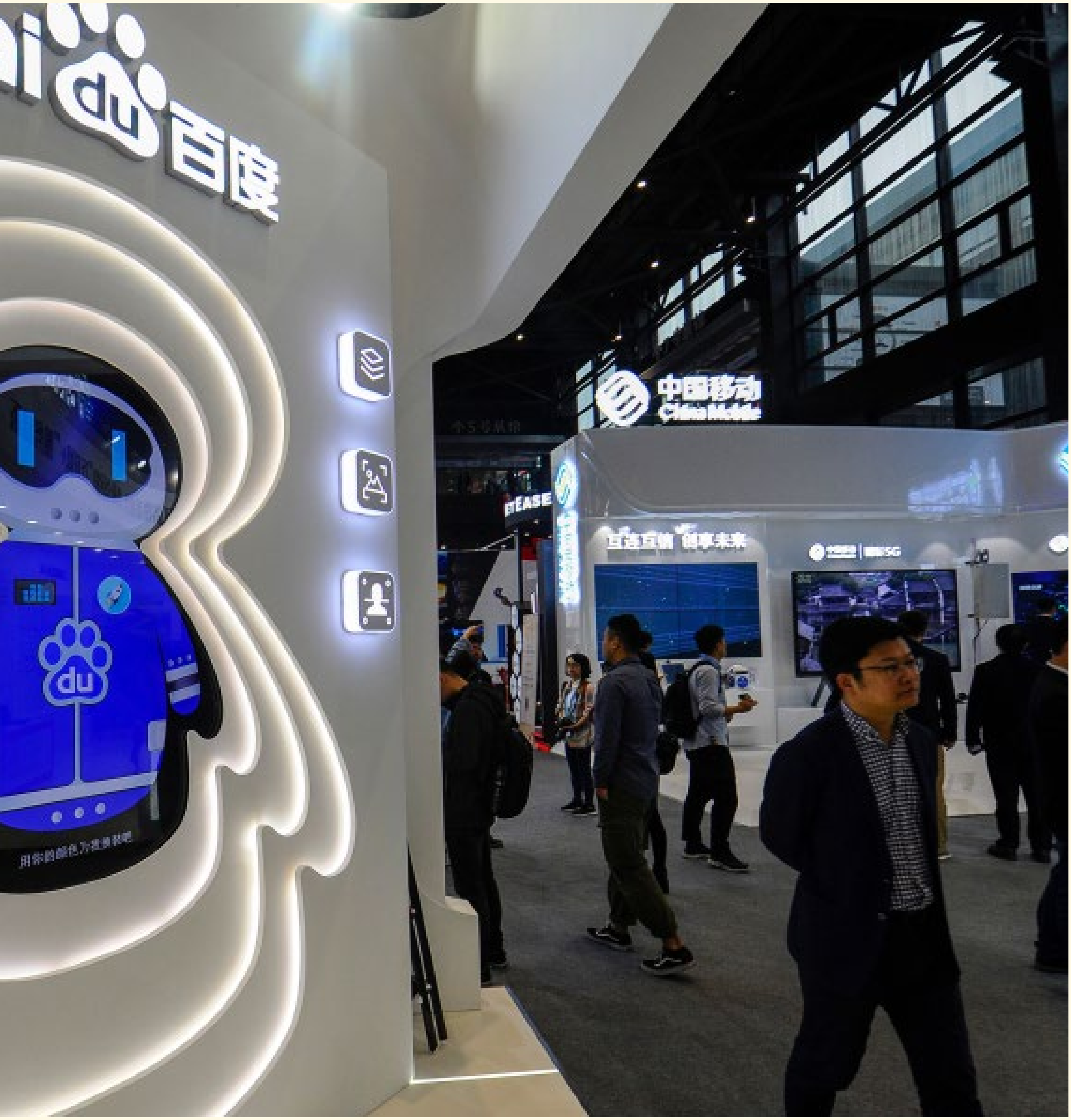

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The answer is no.

Software is not like the internal combustion engine or the telephone. For any given technology, it is necessary to think of all its potential productive uses, or its 'application space'. The application space of the internal combustion engine is instantly-adjustable acceleration. The application space of the telephone is instant transmission of sound. The applications that followed from each of these inventions clearly transformed economic and social behaviour, but they have nothing on software.

The application space of software is nothing less than any coherent human thought. It is a far vaster area than any covered by any prior technology. Any information can be software and any process can be software – from what 'sector' the information and processes originate is almost irrelevant.

If this seems suspiciously universal, that is precisely the point. Consider, for example, that voice-over-internet-protocol, or VOIP, provided by Japanese telecoms and internet conglomerate SoftBank, amongst others, has all but made public switched telephone networks obsolete. Software is eating communications.

Baillie Gifford's electric vehicles holdings Tesla and NIO are rapidly making obsolete the most important use of the internal combustion engine, using an engineering framework to which software is indispensable. Software is eating transportation.

The demise of film cameras, and Eastman Kodak along with them, is now a classic business school case study. Kodak is said to have invented the digital camera in 1975 but to have failed to pursue it, to protect its highly profitable razor-and-razor-blade film model.

Meanwhile, the Dutch holding ASML and SoftBank subsidiary ARM Holdings are crucial to producing the smartphones that have become the cameras of the 21st Century. ASML has a near-monopoly on a key piece of machinery used in the global semiconductor supply chain, and ARM Holdings licenses the chip architecture used in almost every smartphone, plus a decent portion of tablets and digital televisions.

When we visited ASML headquarters outside Eindhoven in March 2019, head of investor relations in Europe, Marcel Kemp, told us that the machine testing previously done by hand is now carried out almost entirely by software. Software is eating our cameras, our phones, our televisions, industrial testing and much else.

© Tesla.

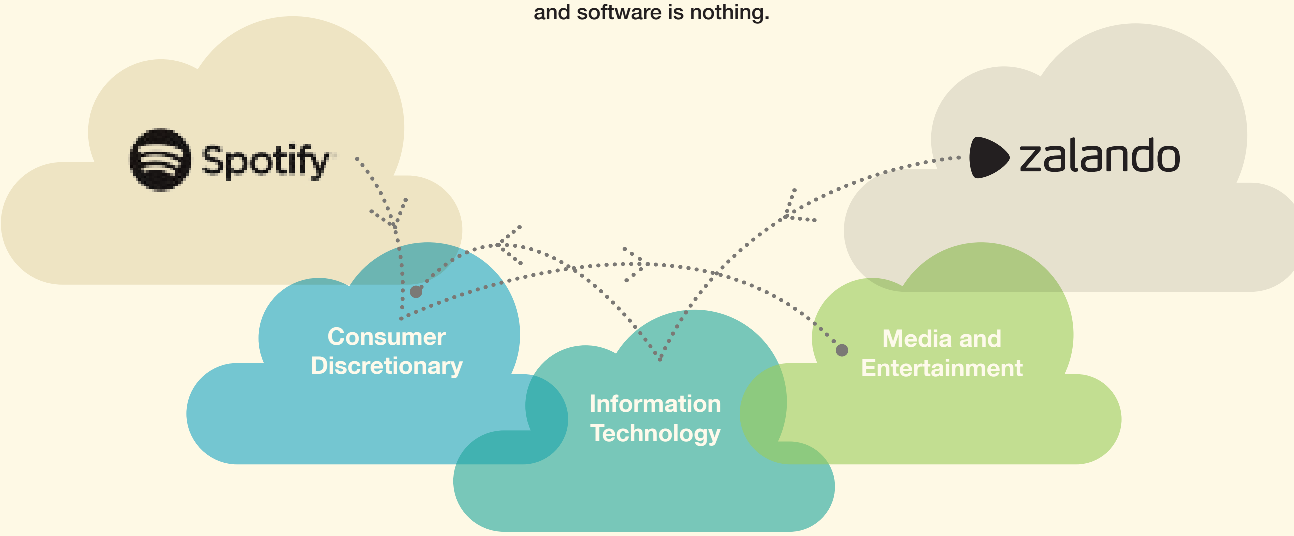
SOFTWARE IS A TOOL

Software is eating the world because software applies to everything, but it is not itself everything.

To tease out a more useful definition of ‘technology’ than any touched on so far; software is mostly a tool for multiplying the productivity of labour. It is mostly productive capital. Companies which make better use of software than their competitors are investing their capital in better tools. They are not in a different industry, but rather are far more likely to win in their own industry in the long run.

We are often asked about our exposure to ‘technology’. It is a perfectly reasonable concern and we wouldn’t want to add unnecessary risk to your portfolio by investing in companies that are all exposed to many of the same financial, legal, and operational risks. But in the case of many of our supposed ‘technology’ investments, these precise risks do not apply. Arguably, the only reason this confusion arises is the dubious sector classifications that pervade the finance industry.

Last year, MSCI altered its Global Industry Classification Standard. Some of these changes are indicated in the diagram below.The International Growth strategy’s holdings Spotify and Zalando are both cloud-based software companies; but apparently Spotify now involves software too useful not to be considered IT, while Zalando contains software that is so indispensable that it can’t be considered IT any longer. Software is everything and software is nothing.



MSCI change	*“The Media Industry Group is moved out of Consumer Discretionary and into the Communication Services Sector and renamed Media and Entertainment.”*	*“Ecommerce companies are moved from Information Technology to Consumer Discretionary.”*	*“The Application Software Sub-Industry is updated to include cloud-based software companies.”*
Baillie Gifford thoughts	Spotify represents one of the most dramatic disruptions to the media industry in decades. It is sensible to consider it as all of ‘consumer discretionary’, ‘communication services’, and ‘media and entertainment.’ But we don’t gain much insight by splitting hairs this way.	Zalando uses information technology to provide a consumer discretionary service. Much like Spotify, definitively classing it as one or the other doesn’t aid our understanding.	Both Spotify and Zalando are arguably cloud-based software companies, but this describes the tools they use, not the service they provide.

While MSCI was sharing all this with the media, nothing in the real world had changed. As we wrote some clients at the time, “the new sector classifications do not reflect a change in the underlying risk profile or level of diversification in your portfolio.”

We think carefully about where real competition and interdependencies exist between holdings, and are happy to invest in payment platforms, logistics networks, music libraries, fashion outlets, and just about anything else – provided our bottom-up research suggests a reasonable likelihood of an exceptional long-term return, regardless of how MSCI classifies such opportunities at any given moment.

MSCI may deem ‘software’ to be a ‘sub-industry’, but we do not believe that being ‘overweight’ this sector adds any relative risk to your portfolio, all else being equal.

The biggest risk of all would be in investing in companies – in any industries – that are not embracing software to the best of their abilities and hoping to preserve this invested capital over the long term. The revenues of any such holding represent low-hanging fruit for the kinds of companies in which we want to invest.

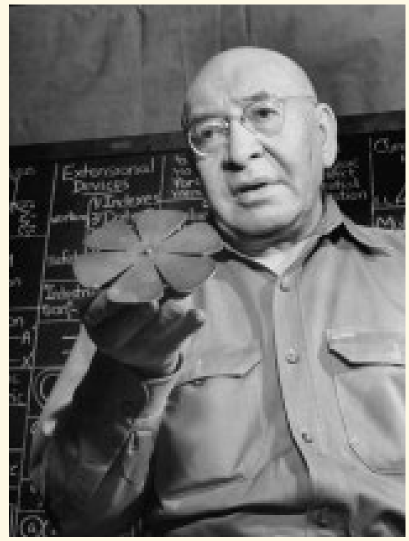
THE MAP IS NOT THE TERRITORY

The philosopher Alfred Korzybski is best known for his dictum “the map is not the territory”. He was warning of the dangers of taking abstractions too seriously. In particular, that we shouldn’t trick ourselves into thinking that an abstraction is literally what it is supposed to represent.

One of the many dangers of this seductive practice is the temptation to believe that changing a representation of reality will change reality itself. Korzybski offered another formulation in that ‘the word is not the thing’. The word ‘technology’ – or worse, ‘tech’ – is most certainly not the thing. It isn’t clear to us that it is *any*thing. We should stop trying to fit reality to labels and wonder instead whether we should change the labels to reflect reality.

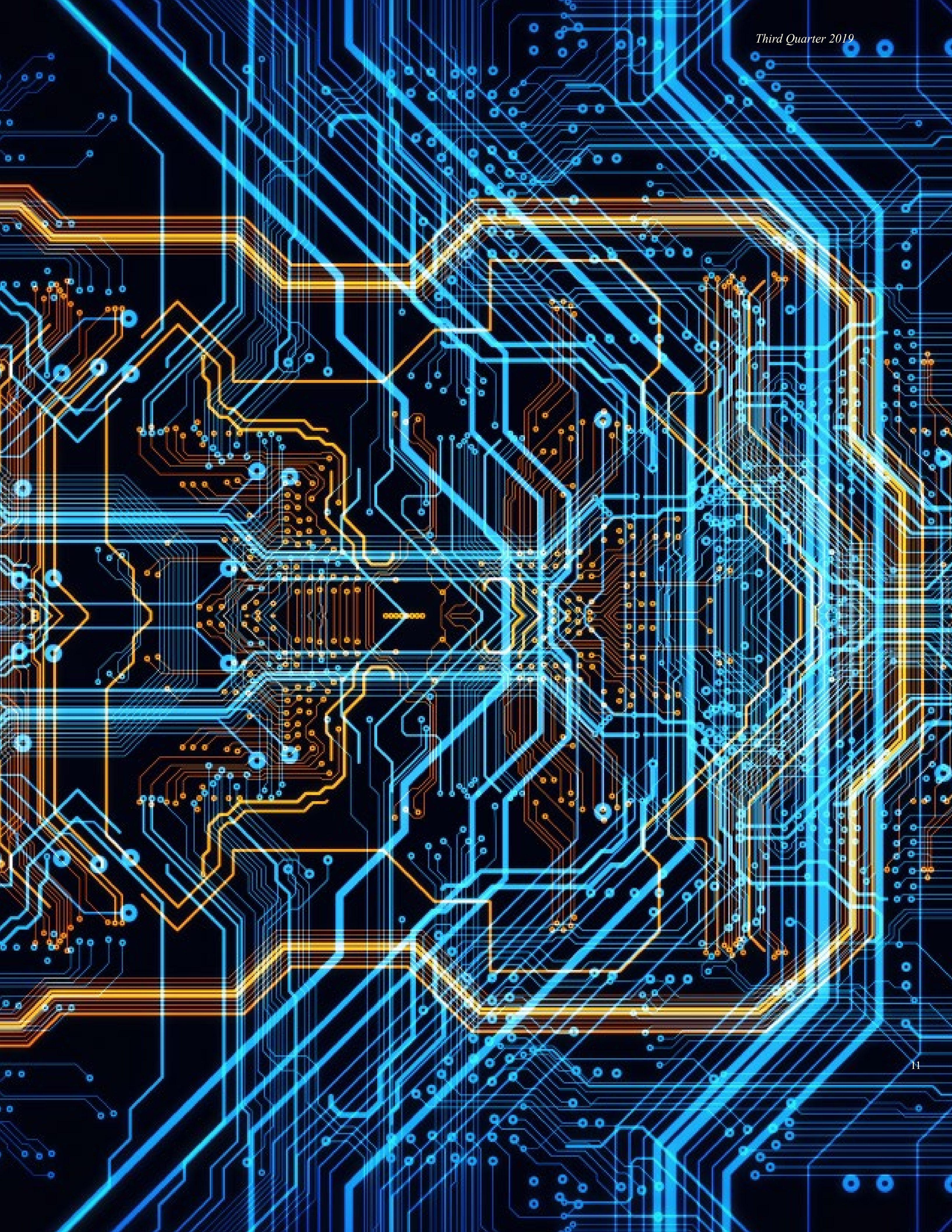
The reality is that Amazon, Facebook, and Apple do not compete. Neither did AT&T, IBM, and GM, and neither do GMO Payment Gateway, Tesla, NIO, ASML, Alibaba, SoftBank, Baidu, Spotify, Tencent, MercadoLibre, Delivery Hero, Meituan Dianping, and Zalando.

In all cases, these companies both use and manufacture technology. For the contemporary examples, much of that technology is software. If we understand the qualities of software as a technology, there will be no great mystery as to why this is the case, but it does not imbue these companies with extra characteristics. How the world of finance categorises these companies does not change how they operate, or how they relate to one another, no matter how much we might enjoy scribbling on the map.



Alfred Korzybski

To repeat: The map is not the territory. There are exceptional businesses, but there is no such thing as ‘tech’.



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