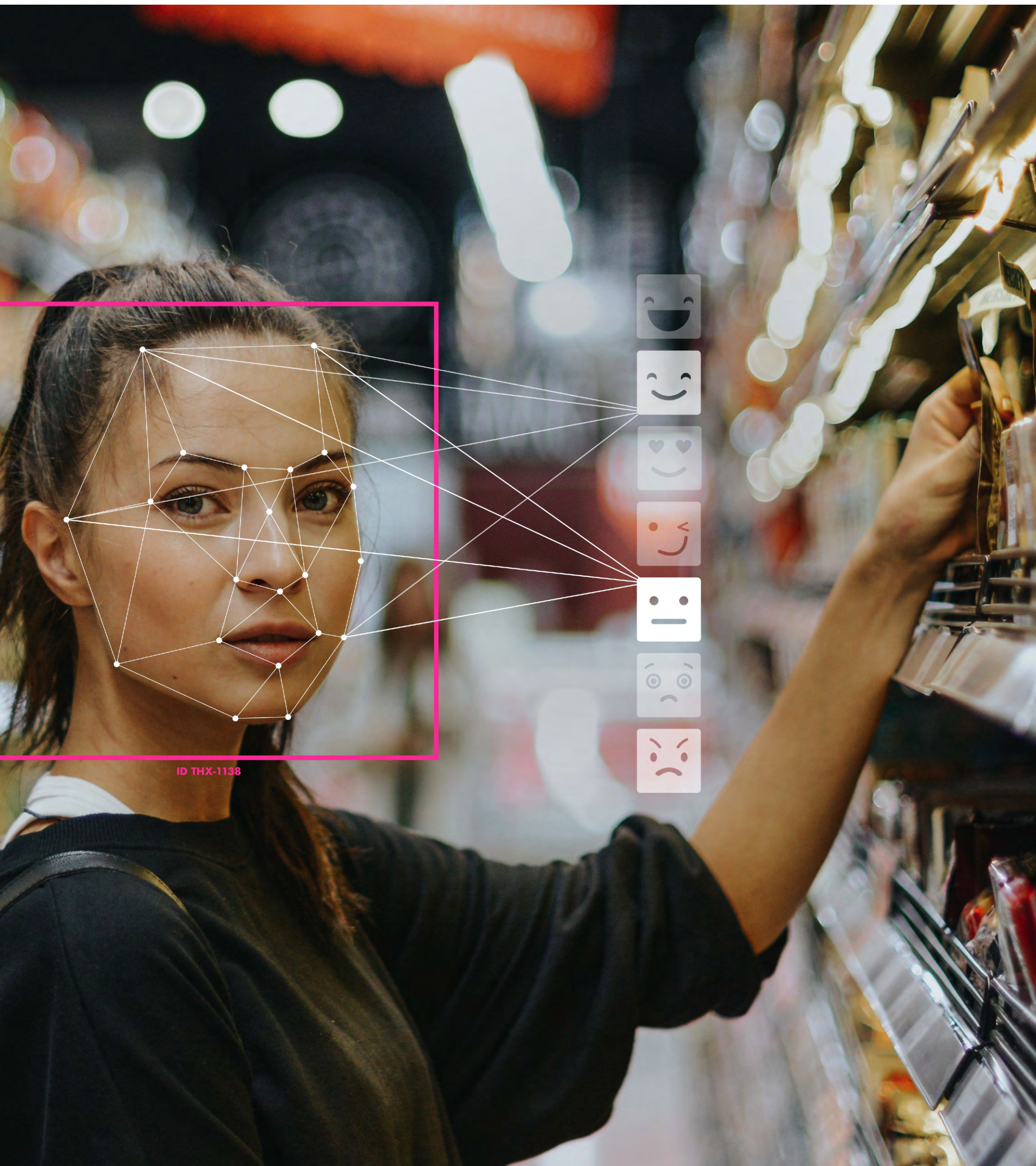


# TRUTH, TRUST AND THE FUTURE OF COMMERCE

sparks & honey

Culture Forecast / 2018





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# **METHODOLOGY**

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# METHODOLOGY

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The cultural shifts identified in this report are the result of an analysis of signals at the edges of culture, including thousands of articles, search terms, research papers, social listening, and quantitative studies, conducted by sparks & honey via its cultural intelligence system Q™ (see Appendix).

The project team augmented the initial findings through qualitative research by conducting in-depth interviews with leading experts in relevant fields, including public policy, neuroscience, artificial intelligence, 3D printing, systems thinking, retail, and more (see Contributing Thought Leaders in Appendix).

Our approach is centered on strategic foresight practices that aim to provide a broad landscape of vectors (i.e., macro factors, trends, shifts in public opinion, scientific research, and others) influencing an industry, practice, audience, or in this case, the activities of producing, marketing, selling, and buying at scale -- commerce.

Rather than predicting the future, our intent is to highlight patterns among these vectors as a platform to discuss our choices in the here and now. How we deal with these patterns of change and the possibilities they create is what makes a tangible difference between probable and preferable futures.



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**EXECUTIVE  
SUMMARY**

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# EXECUTIVE SUMMARY

This report examines how the activities traditionally associated with commerce are being disrupted and transformed by innovations that will redefine how we produce, distribute, market, and consume products and services.

Our analysis points to a redefinition and upgrade of commerce practices around rapid technological, operational, and societal shifts that are already disrupting how we experience reality as well as what and whom we trust.

From fake news to disinformation and the collapse of institutional trust, businesses and governments are waking up to a changed world. While leaders formulate strategies to deal with massive structural changes, the signals are pointing to an even larger wave of cultural shifts that will have longstanding implications for the future of commerce and your business.

These shifts are brought on by a number of factors: the growing capabilities of technology to manipulate reality, the increase in both volume and intimacy of the data we generate, and operational innovations that radically improve the ability of organizations (productive and malignant) to adapt and respond to contextual input.

The very exponential pace of technological development — a defining factor of the Fourth Industrial Revolution<sup>1</sup> — provides the backdrop to the transformation of commerce. The Fourth Industrial Revolution is seen as a new stage of human development, one defined by “a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres,” according to Klaus Schwab, founder and executive chairman at the World Economic Forum.<sup>2</sup>

Part of that development is the merging of our biology with our physical and digital contexts — and if that sounds like science fiction, think again.

Commerce is being transformed through the intersection of physical, digital, and biological data. From wearables to implantables, it’s innovations such as an ultrathin nanomesh electric “skin” that can read and display the wearer’s heartbeat that are bringing technology closer to us than ever before. The close proximity of technology to the human is creating an increasingly intimate set of new data verticals that are opening the door to hyper-personalization.

These new data verticals include inputs from our devices, smart homes, and even future smart cities — measuring everything from the steps you take (or don’t), to the quality of your sleep, preferences for personal items and life partners, to understanding your emotions before, perhaps, even you do, through the growing accuracy of emotion recognition algorithms. In addition, genomic data in which your DNA plays a starring role (such as Helix’s DNA kit) can be applied to anything from health to entertainment and fine dining.

The blending of physical, digital and biological data is in tandem with the fast-moving and growing sophistication of media and technologies that are able to manipulate and bend reality. The convergence of these cultural forces radically increases the need for initiatives that focus on facts and truth. In addition, this landscape calls for organizational policies and behaviors that provide a new set of guarantees to the public by mitigating the risks and impact of this fragmentation of reality.

<sup>1,2</sup> World Economic Forum, The Fourth Industrial Revolution: what it means, how to respond

<sup>3</sup> Futurism, An Ultrathin, Super-Stretchy Nanomesh Skin Display is the Future of Wearables

# KEY FINDINGS

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## 1

**The organizations that are creating the foundation for the future of commerce are aggressively investing in a wide range of data verticals which are able to mine and structure individual biology, physical or digital context, and emotion.**

These organizations are also designing business models to enable the self-organization and self-optimization of every segment in the value chain, from design and production to marketing and distribution. These adaptive models are fueled by data and will grow in complexity and significance with new datasets which will inevitably involve human emotion and biology.

## 2

**The foray of genomics into the commerce ecosystem is ushering in an era of unprecedented intimacy of data, which will demand new models of data security and management.**

As investments in artificial intelligence, genomics, and other sectors mature within ecosystems – such as those of Alphabet, Tencent, Baidu and other technology giants – we will face radically new business models which will demand radically new standards on data privacy and management. This further emphasizes the present need for more transparency and choices that prioritize the development of technologies that enable data management and ownership at the consumer level.

## 3

**What we perceive to be real is being altered with the advent of technology designed to hack our human senses.**

The emergence of emotion recognition technologies to brainwave-to-cloud interfaces, wearables and sensors that translate your thoughts, or devices that can change your expression in an image, are among a growing cohort of technologies that have the power to hack the very senses we rely upon to communicate and understand the world. The application of these technologies across commerce (from manufacturing to marketing and corporate communications) will soon outpace our ability to develop ethical and regulatory frameworks around them.

# KEY FINDINGS

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## 4

**What we see, hear, touch, or even feel is redefining our understanding of truth and the information we process — the end result is a fragmentation of reality.**

Every day, the human brain is inundated with an information load that equates to 34 gigabytes.<sup>4</sup> Not only do we absorb vast amounts of data, but we are active producers of data through the platforms, wearables and our daily digital behaviors. When coupled with reality manipulation technology, this vast machinery is redefining our relationship with reality, fragmenting it and creating multiple parallel “truths” that can massively increase division and polarization in society.

## 5

**The speed of structural change is creating areas of blurred responsibility between public and private sectors, opening the door for organizations to become infrastructure architects.**

Where institutional trust is eroding, some organizations are making the choice to step in to rebuild and instill confidence in the functions of a society, and by association, the people they serve. In return, acting as infrastructure architects could become a longstanding loyalty program for consumers, one that cannot be measured in points.

## 6

**The future of commerce will rely on balancing the transformative power of the technologies associated with the Fourth Industrial Revolution with their potentially destabilizing forces.**

In a climate where public and private sectors are empowered with the most intimate data — where reality is malleable and can be constructed and hacked at will — organizations must acknowledge the grey areas of blurred responsibility. They must proactively create avenues for public and private sector collaboration to anticipate risks and devise a social contract that puts the public firmly in control of critical assets like their own data, and engenders trust by engaging consumers as stakeholders in the development of the models and innovations that will reshape the world as we know it.

<sup>4</sup>Research by the University of California-San Diego



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**INTRODUCTION: FORCES SHAPING  
THE FUTURE OF COMMERCE**

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# INTRODUCTION: FORCES SHAPING THE FUTURE OF COMMERCE



Commerce — producing, marketing, selling, and buying at scale — is being disrupted and transformed by a number of cultural forces (Figure 1: Forces shaping the future of commerce) that are changing the way we produce and consume products and services.

Figure 1.0 shows the aggregation of signals related to technologies, attitudes, and behaviors influencing the activities associated with commerce.<sup>5</sup> In a bird's-eye view, this chart depicts how these forces are interconnected and influence a wide range of culture, with far-reaching implications to almost any area of society, such as sustainability, automation, reputation systems, privacy, cybercrime, and more.

The future of commerce illustrated here is shaped by a growing appetite for hyper-personalization in the design, manufacturing, distribution, and marketing of products and services. Hyper-personalization, enabled by our intimate relationship with data, is already accelerating in the products, services and experiences seen in emerging models of equity crowdfunding, the virtualization of physical assets, sharing economy services, or hyper-segmentation methods.

<sup>5</sup> Signals represent thousands of articles, blog posts, search terms, public conversations in social networks, and other sources collected by sparks & honey's cultural intelligence system QTM (January 2017 to January 2018)  
Image: Tom Ritson, Unsplash

This context is laying the foundation for data verticals that stem from biology and genomics to emotions and our increasingly connected homes. These new data verticals include inputs from our devices, smart homes, and even future smart cities — measuring everything from the steps you take (or don't), to the quality of your sleep, preferences for personal items and life partners, to understanding your emotions before, perhaps, even you do, through the growing accuracy of emotion recognition algorithms. In addition, genomic data in which your DNA plays a starring role (such as Helix's DNA kit) can be applied to anything from health to entertainment and fine dining.

Consequently, issues of data privacy, ownership and sharing are surfacing a need for radical transparency and authentication as a grounding force in a wavering world. At the same time, the very solutions we look to — whether voice assistants, blockchain, brain-computer interfaces, neural networks that can translate visual information into data, or digital platforms that demand our personal data — can fuel or potentially hinder businesses and society at large.

This marks a cultural crossroads, where the tools we turn to for radical transparency are enabling it, but also resulting in new concerns for the future.

Data that is personal — and the more personal, the more valuable — will allow organizations and governments to thrive. Blurring the lines between physical, digital and biological spaces, the Fourth Industrial Revolution is enabling a more intimate level of data to be harnessed. It's the institutions armed with data and an understanding of how they can bridge trust with their co-creators that will prevail in a future where continuous and rapidly evolving hyper-personalization is the norm.

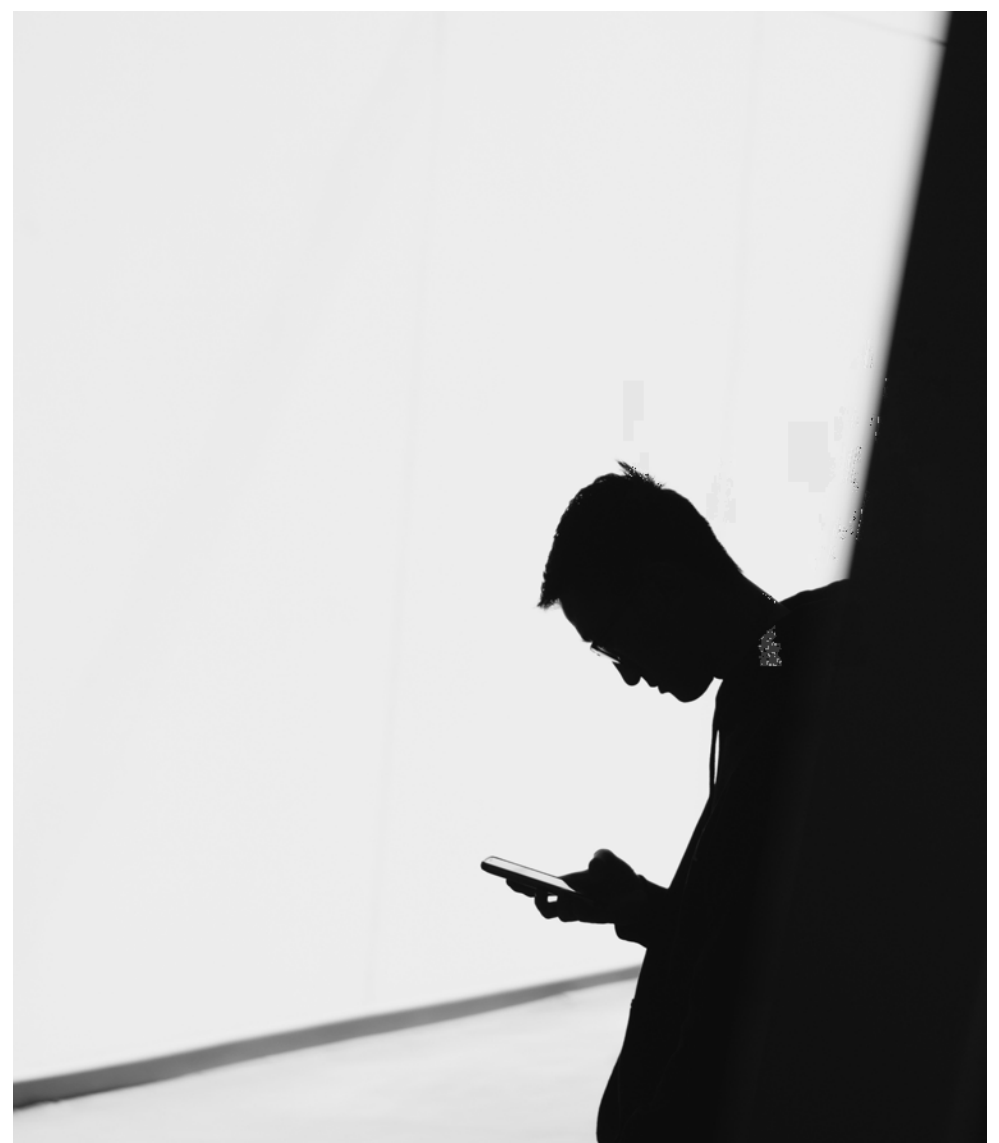
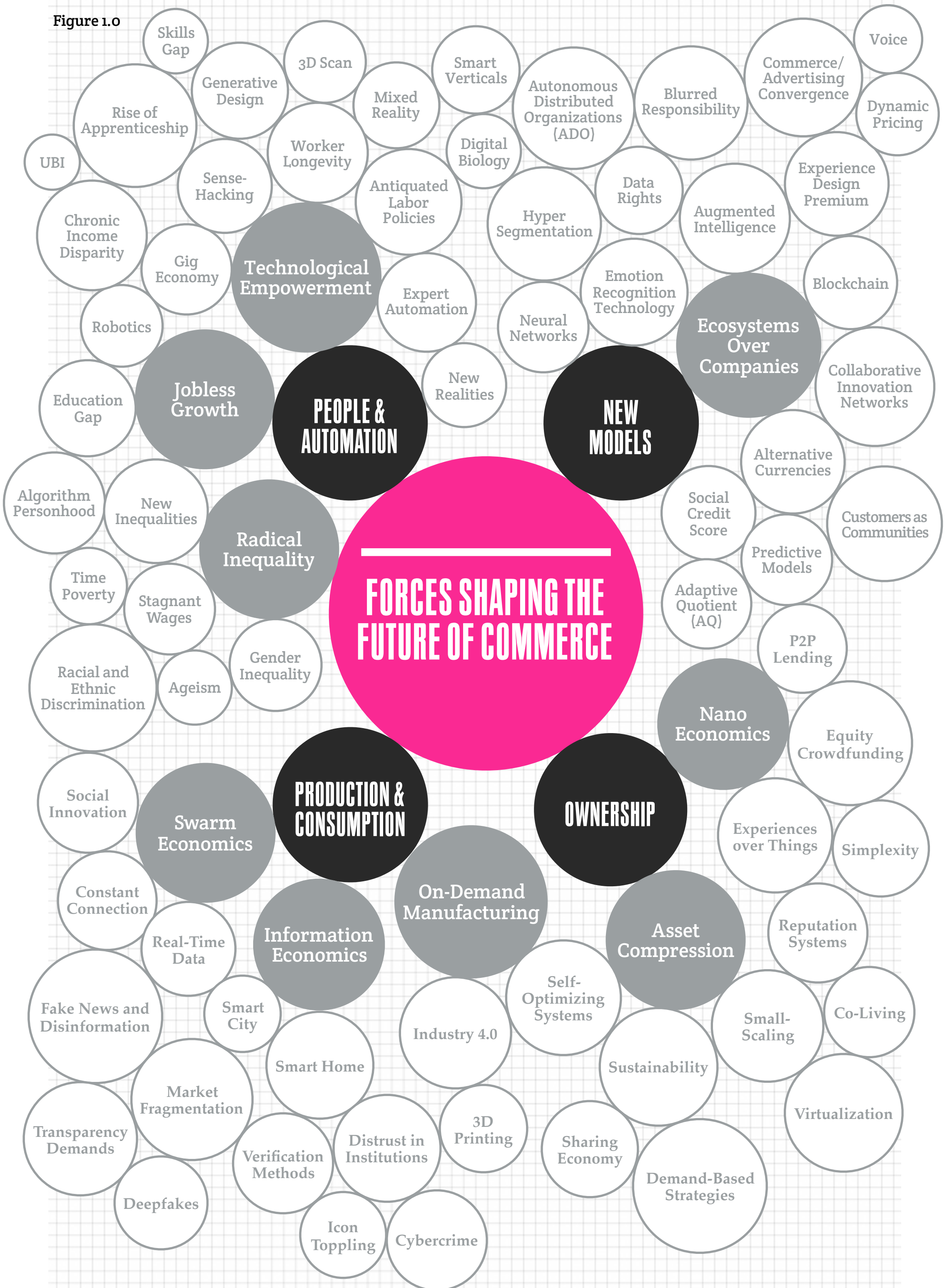


Figure 1.0



Source: sparks & honey's Q™, January 2017 to January 2018

*If we can use big data to manipulate, we can use big data to falsify. We should check on sources, and blockchain should be one of the technologies that holds promise to trace where things come from, because it provides transparency and anonymity — qualities that help us with truth and trust.*

**Ping Fu**

**Co-founder of Geomagic, sparks & honey Advisory Board member**



**RISE OF  
DATA-OPOLIES**

# RISE OF DATA-OPOLIES

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The “Big Five” tech companies — Google, Amazon, Facebook, Apple, Microsoft — and their Chinese cohorts, Baidu, Tencent, and Alibaba, are wielding growing power over consumers and their data. There is a distinct line being drawn between organizations who have data on their customers and those who do not. The Harvard Business Review<sup>6</sup> coined the likes of Facebook, Google and Amazon as “data-opolies,” which it describes as “companies that control a key platform which, like a coral reef, attracts to its own ecosystem users, sellers, advertisers, software developers, apps and accessory makers.” The ones that “have” data will continue to dominate and grow.



<sup>6</sup> Harvard Business Review, Here Are All the Reasons It's a Bad Idea to Let a Few Tech Companies Monopolize Our Data  
Image: Chuttersnap, Unsplash

Amazon, for instance, has brick-and-mortar retail stores like Amazon Bookstores or Amazon Go locations, online purchases, streaming services and home deliveries that don't require a customer to be home with Amazon Key. It's a system that is omnipresent in a consumer's world, and one that relies on their interaction and data with the company as co-creators. It's a reciprocal relationship in which an organization such as Amazon touches on all areas of life, building community and frictionless services and products.

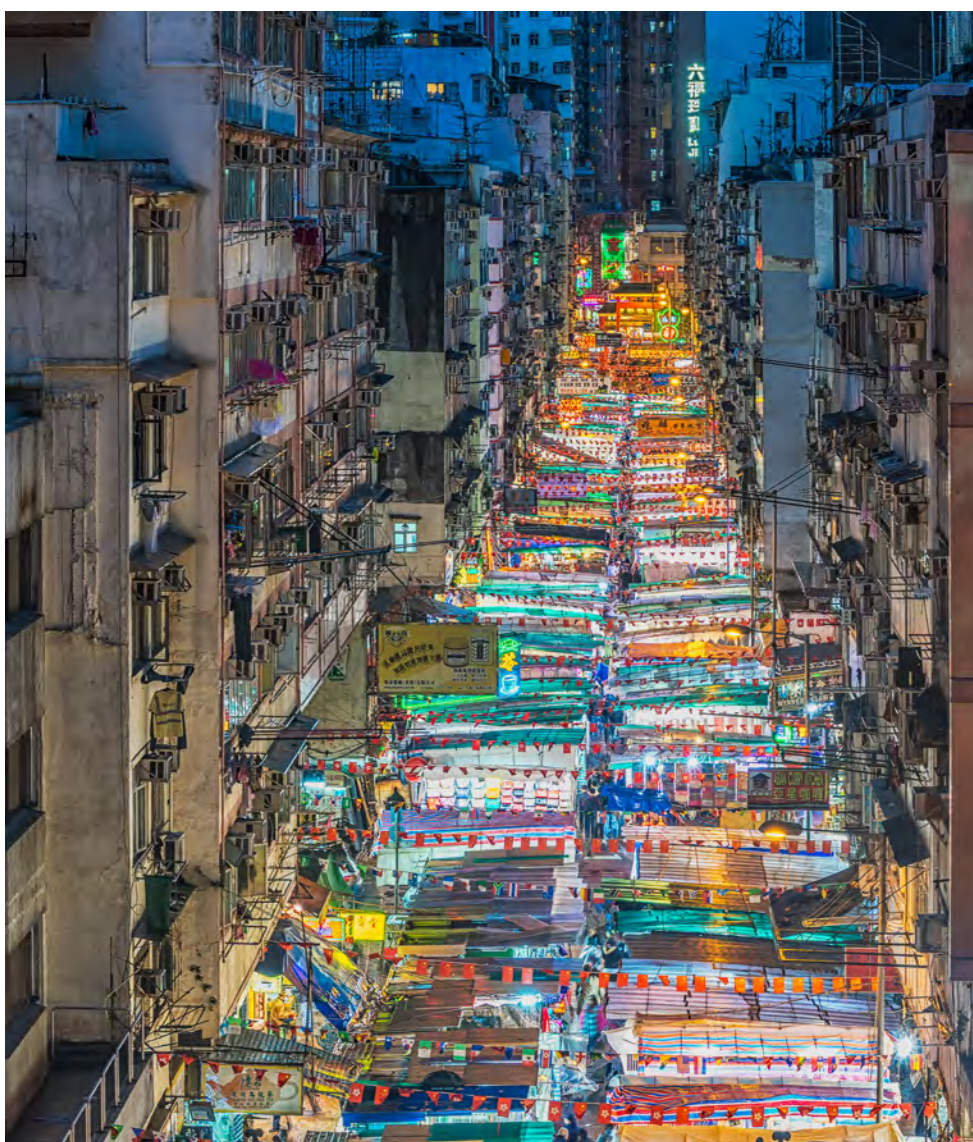
The case of the Chinese tech giants is particularly telling in the blurring of public and private sectors. Investors and governments are pouring money into the startup sector in China.

**In 2017, the total funding received by all Chinese startups increased to \$6 B<sup>7</sup>**



In 2017, the total funding received by all Chinese startups increased from \$1.2 billion in the beginning of the year to \$6 billion by the end of the year. This funding includes investment across several industries, such as enterprise services, healthcare and manufacturing, and we can expect to see the heft of the startups in these vertical industries to grow, making it more challenging for new startups to outpace the heavily invested leaders in these industries.

Further, Baidu, Alibaba and Tencent (collectively called BAT) are taking action to become the AI platforms of the future (Figure 2: Baidu, Tencent, Alibaba eye global AI startups). A recent report from CB Insights reveals a wide range of interest and areas of investment that demonstrates their aspirations (heavily backed by the Chinese government) to “to become global leaders in smart city solutions, autonomous driving, conversational AI, and predictive healthcare.”<sup>8</sup>



<sup>7</sup>All Tech Asia, The top 10 startups and investors that led China's tech investment trends in 2017

<sup>8</sup>CB Insights, Rise of China's Big Tech in AI

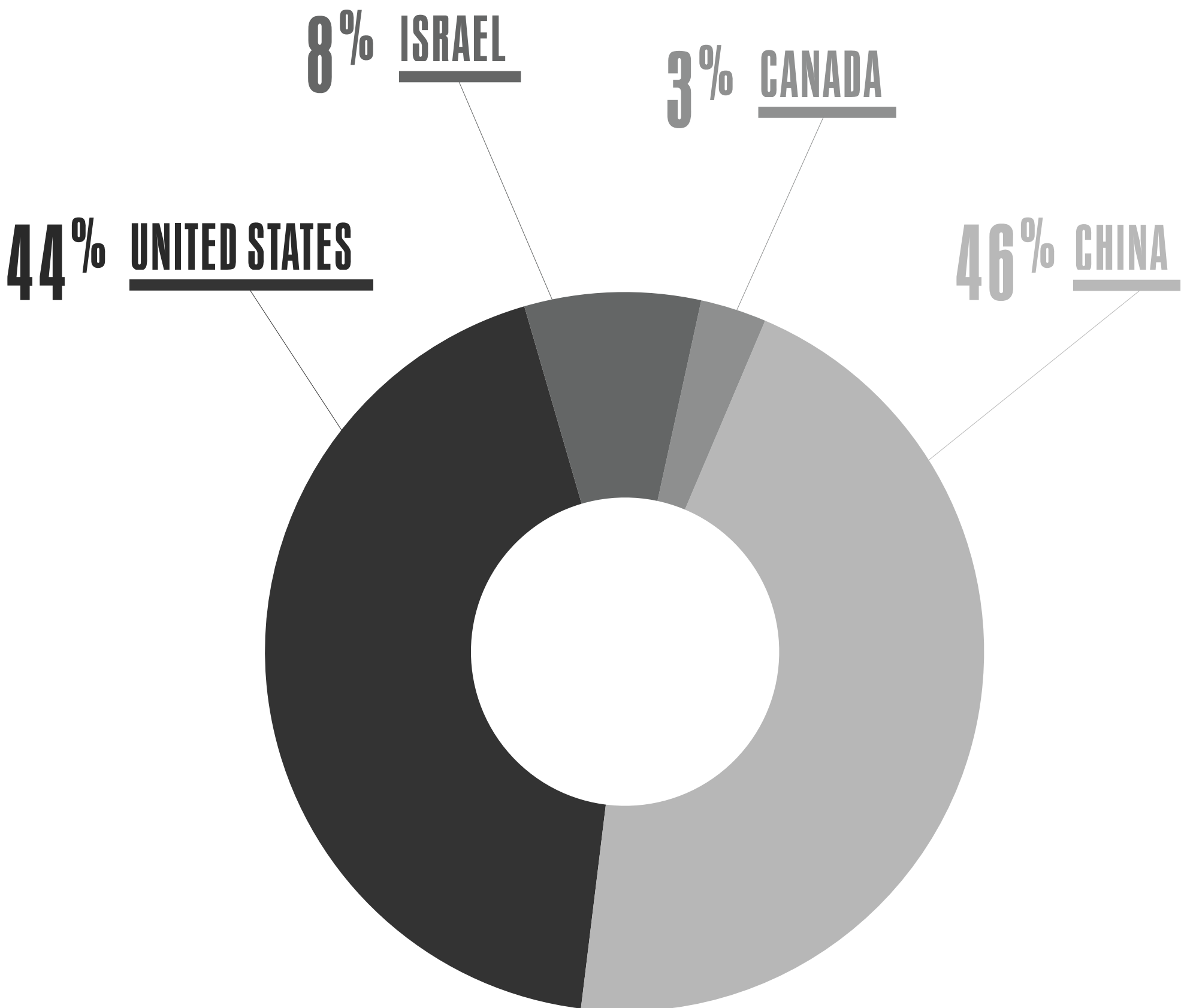
Image: Steven Wei, Unsplash

Figure 2.0

# BAIDU, ALIBABA, TENCENT EYE GLOBAL AI STARTUPS

The biggest companies in China are being positioned to become global leaders in smart city solutions, autonomous driving, conversational AI, and predictive healthcare.

BAT-backed equity deal share by country, 2014 -2018 (as of 4/20/18)



Source: CB Insights, Rise Of China's Big Tech In AI: What Baidu, Alibaba, And Tencent Are Working On, 2018





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**COMMERCE GIANTS ARE FUELING  
THE AGE OF DIGITAL BIOLOGY**

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# COMMERCE GIANTS ARE FUELING THE AGE OF DIGITAL BIOLOGY

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Humanity is becoming a measurable concept that is quantified by data through our increasingly intimate connection to technology<sup>9</sup>, across all areas of our lives. From biology to our emotions, our devices and the growing cadre of smart homes (and even smart cities) are measuring and structuring our locations, preferences, habits and overall existence.

The data from our lives is turning into a hyper-personalized narrative, used to increase the value and contextual resonance of products, services, and experiences. More and more, that data is coming from the human — our biology, DNA, and genomics. And it is the investment of key technology players in genomics startups and intellectual property that will accelerate and potentially disrupt the way we think about personalization across commerce.

Consider the foray of Google and Amazon into the genetics industry; Google is making genetics and genomics accessible and searchable, while Amazon is focused on the technology backend of the process. Both efforts will potentially enable organizations to incorporate genomics data into any aspect of the value chain. At the same time, companies such as Apple, Microsoft, IBM and Samsung have expanded their health-tracking technologies to arm consumers (and the companies) with their own biotech data.

The integration of genomics and consumer products presents a high level of potential disruption in highly personalized information from data that is based on our mood, emotions or genome (Figure 4: Genomics sets eyes on many consumer applications). It's a space that is speeding forward, as global financing in genomics startups doubled last year (See Figure 4).

**IBM's Watson for Genomics is set to be integrated into biotech company Illumina's TruSight Tumor 170 tool to speed up tailored drug recommendations for cancer patients — a process that typically takes a week for doctors can be done by Watson for Genomics in a few minutes, according to the company.<sup>10</sup>**

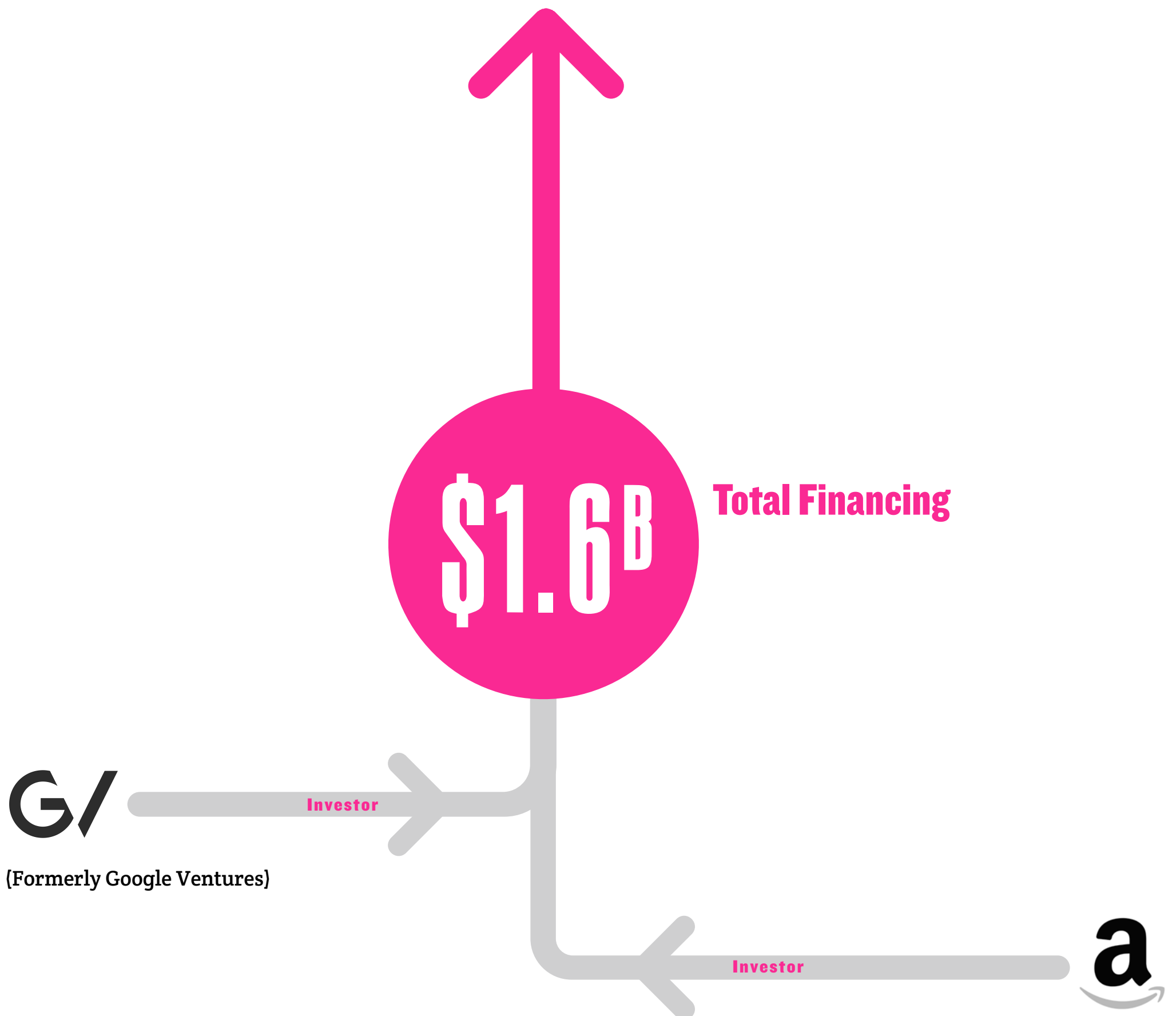
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<sup>9</sup> World Economic Forum, The Fourth Industrial Revolution by Klaus Schwab  
<sup>10</sup> Medical Futurist, Top Companies in Genomics

Figure 3.0

# THE LARGEST GENOMICS DEALS ARE GETTING BIGGER

# GRAIL

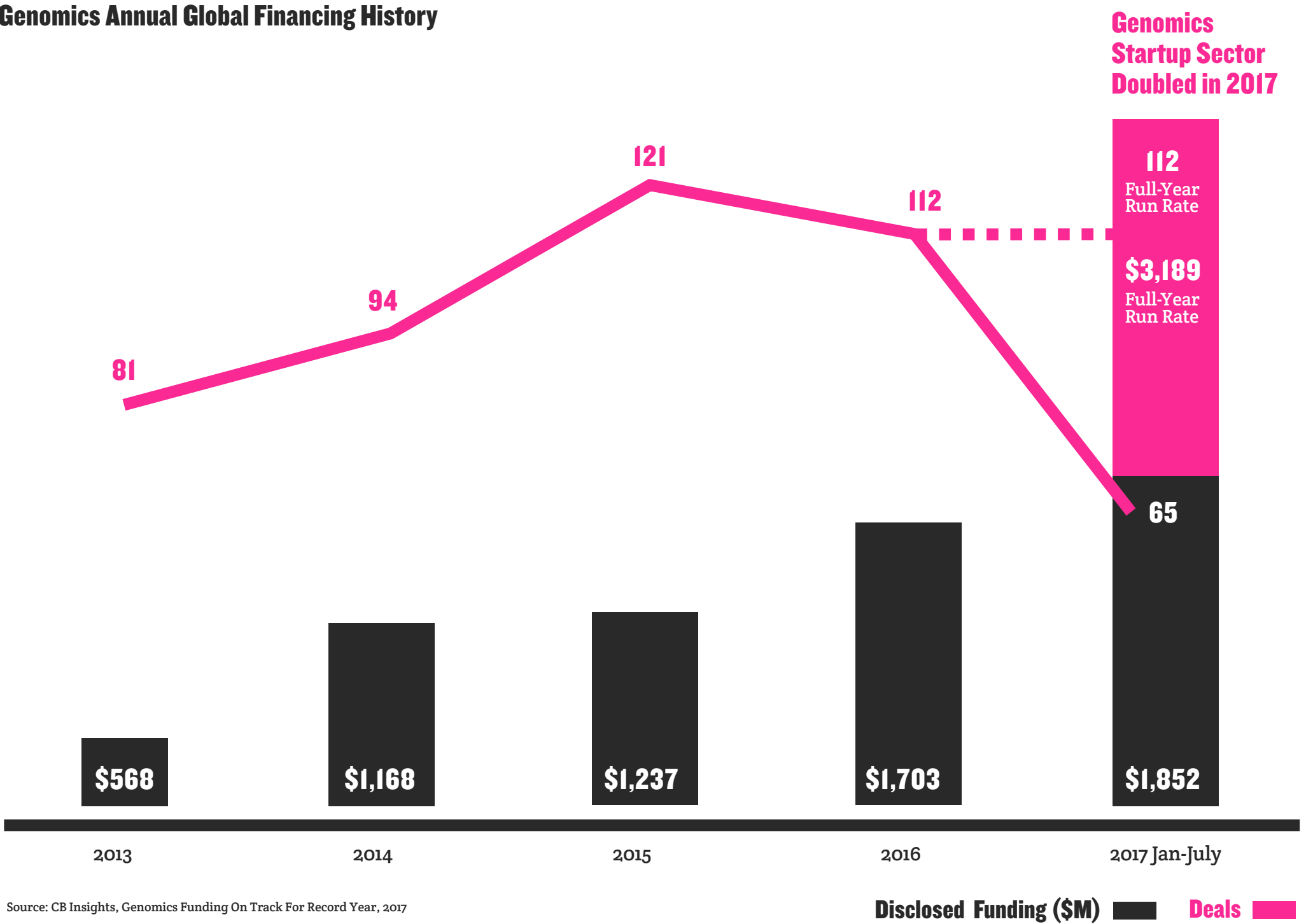


Source: CB Insights, 2018

Figure 4.0

# GENOMICS SETS EYES ON MANY CONSUMER APPLICATIONS

## Genomics Annual Global Financing History



## New Genomic Startups Aim for Direct-to-Consumer Models

**\$385M**  
In Funding

### Your Personalized Genomics Store



Source: CB Insights, 2018  
Fast Company, Genetics Startup Helix Wants To Create A World Of Personalized Products From Your DNA



It is only the dawn of true personalization. We have already seen progress in a wide range of commercial applications of personalization, such as personalized product recommendations via e-commerce giants like Amazon or personalized content via entertainment like YouTube or Netflix. In fact, the investments of some of the most powerful technology players across the globe (Figure 5: The definition of personalization is evolving) indicate that we can expect to see personalization embedded in real time across entire business models.

The growing use of wearables and under-the-skin technologies that quantify everything from our steps to our biometrics and heart rates, such as electrogastrigraphy<sup>11</sup> or the ultra-thin nanomesh electric “skin” that can read and display the wearer’s heartbeat,<sup>12</sup> are additional technology agents of our hyper-personalized future.

Data will tell stories of nuanced behavior, such as time spent with work or family, daily rituals, people who come in and out of homes, how we decide what’s for dinner, and what we finally eat — and more. Increased contextual awareness opens up enhanced capabilities to read and react to emotion (Figure 6: Emotion recognition set to permeate all aspects of commerce) and with it, the ability to potentially manipulate individuals with technology.

Data across all verticals could be gathered on cognitive emotional engagement during specific activities at home. “There is a sweet spot of challenge,” said Dr. Vivienne Ming, theoretical neuroscientist and CEO of Socos, referring to how we process information during play. “If I put a piece of headgear on my kids when they are sitting in front of a computer, it would tell me what their level of engagement is,” she said.

Highly specific personal data will become essential to future organizations. We can expect to experience a radical redefinition of how organizations and consumers understand “personalization” with applications that leverage large amounts of personal and contextual data to create value, encourage loyalty, and deliver superior experiences.

### **Welcome to your hyper-personalized world:**

**Personalized medicine**

**Personalized pharmaceuticals**

**Personalized nutrition**

**Personalized weight loss**

**Personalized fitness**

**Personalized beauty and skin care**

**Personalized gastronomy**

**Personalized education**

**Personalized apparel and design**

**Personalized travel and leisure**

**Personalized sleep and wellness**

**Personalized \_\_\_\_\_.**

While potentially revolutionary in the way it creates value, this level of precision will enable a future of commerce in which data reveals where you are, where you live, how you live, with whom, and even use your emotional state and unique biology for hyper-personalized manufacturing, distribution, pricing, services, experiences, content and more.

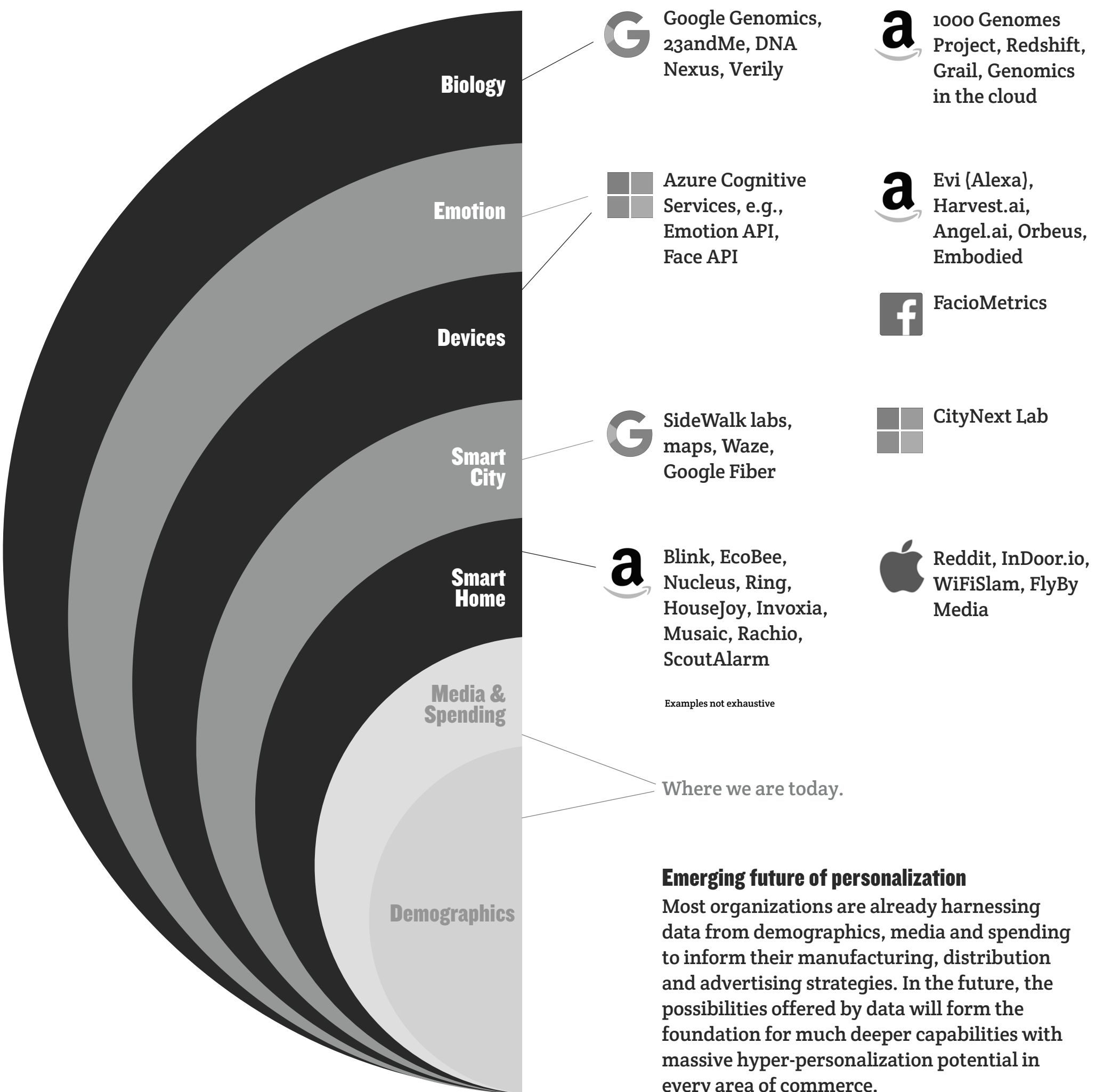
How can we prevent this power from being employed to manipulate the public at will without suspicion? What are the implications not only for commerce but also for democratic systems and human rights? Should we hit the brakes on some of these developments?

<sup>11</sup> Engadget, Stomach wearable could replace the need for invasive probes

<sup>12</sup> Futurism, An Ultrathin, Super-Stretchy Nanomesh Skin Display is the Future of Wearables  
Image: Alex Iby, Unsplash

Figure 5.0

# THE DEFINITION OF PERSONALIZATION IS EVOLVING



### Emerging future of personalization

Most organizations are already harnessing data from demographics, media and spending to inform their manufacturing, distribution and advertising strategies. In the future, the possibilities offered by data will form the foundation for much deeper capabilities with massive hyper-personalization potential in every area of commerce.

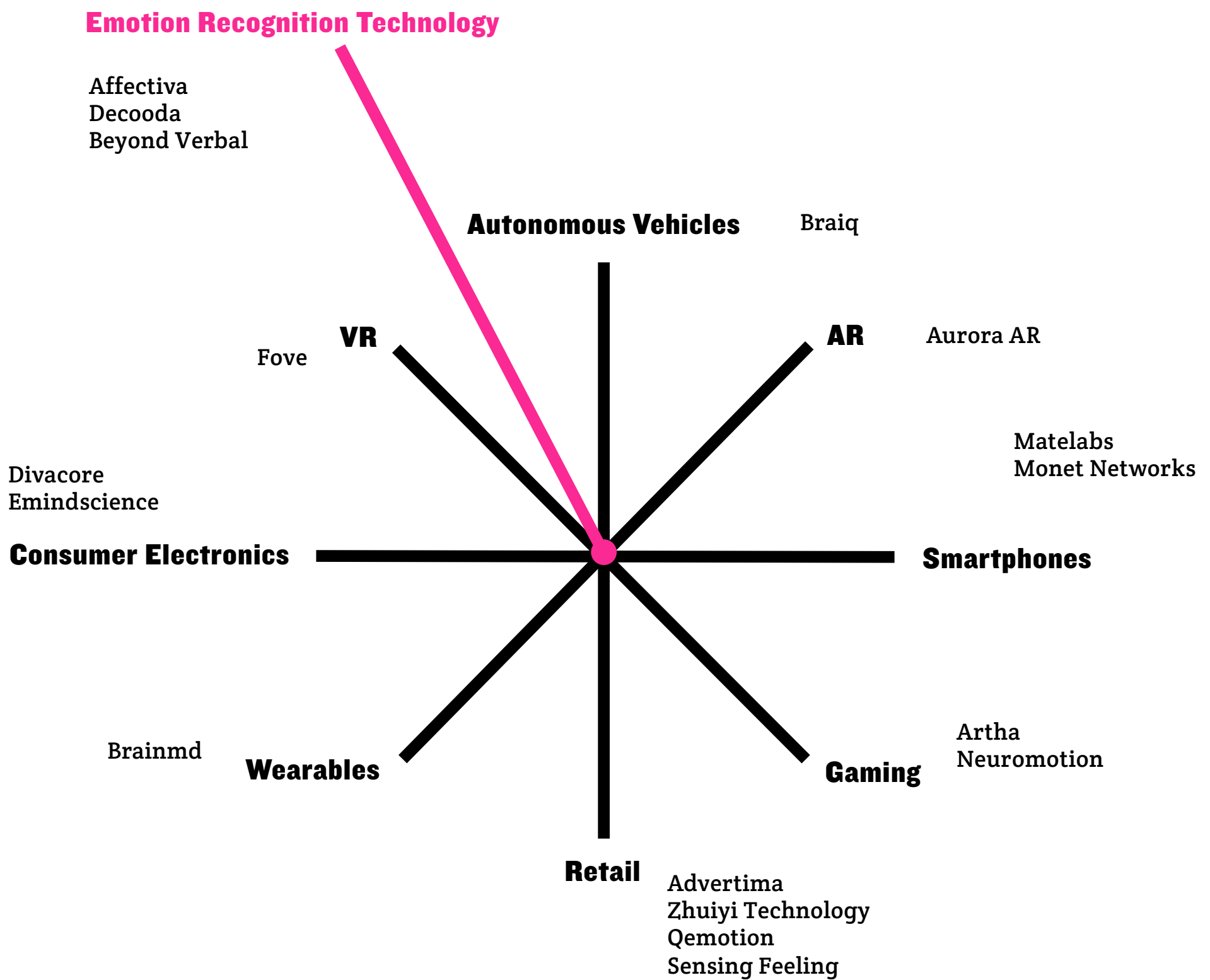
Source: sparks & honey Q, 2018

Figure 6.o

# EMOTION RECOGNITION SET TO PERMEATE ALL ASPECTS OF COMMERCE

## Startups in emotion recognition technology

Not exhaustive



Source: CB Insights, 2018



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**DATA PRIVACY AS A  
HUMAN RIGHT**

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*Privacy is a human right.*

**Tom Bollich**

**CTO of MadHive, sparks & honey Advisory Board member**

# DATA PRIVACY AS A HUMAN RIGHT

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Emerging technologies that are designed to mine our data are highlighting a growing need for protecting data shared with companies. Bio-tattoos, microchip implants to measure biometrics, and brain-computer interfaces like Neuralink — which aims to connect our brains to the cloud — have the power to interpret our bio-data, emotions and communications in real time and in ways that could offer insights about ourselves that are deeper and richer than anything we would be willing to share even with our closest friends.

Further concern for data protection comes from patents such as one filed by Amazon, which would expand the listening capabilities of its voice assistants.<sup>13</sup> The patent's algorithm would allow the assistant to listen in on any conversation without requiring a wake word. Instead, it would always listen for key words like “prefer,” “like,” and “love” in conversations.

Considering the growth in voice-enabled devices and their role in accelerating the smart home category (Figure 7: Growth in smart speakers is accelerating the smart home category), we are already looking at a massive market of data collection which is largely unregulated and poorly understood by a large portion of the commercial sector.

In this new battleground, innovation will happen in years (if not months), as over 2,000 companies and institutions have filed for voice-computing patents in the last year alone (Figure 8: Voice patents by industry).

We can expect voice/smart speakers to complement and substitute many functions today that are performed by smartphones with enhanced capabilities that already include sophisticated prediction algorithms and emotion recognition technology (Figure 9: The future is already here).

## FUTURE OF ADVERTISING

**Mad Network has built the first blockchain protocol for digital advertising with privacy by design. The MAD Protocol delivers 100% privacy for consumers by using a combination of blockchain and AI technologies.**

**“By moving the ad decisioning into the user’s device and leveraging their data locally, we can switch from a push to a pull model” and still cryptographically prove when an ad is viewed,” said Tom Bollich, CTO of MadHive.**

**MAD’s system is based on the idea that because campaign performance can be cryptographically proven through methodology like zero knowledge proofs, while personal data remains entirely private, targeting and personalization becomes significantly more effective. “Putting consumer privacy first allows the advertiser and consumer to come closer together, and opens up a whole new world of possibilities for advertising,” Bollich said.**

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<sup>13</sup> US Patent & Trademark Office, Keyword determinations from conversational data

*One core principle of the fair information practices is that you only collect data for the purpose it was specified for. Most of big data has a secondary use purpose.*

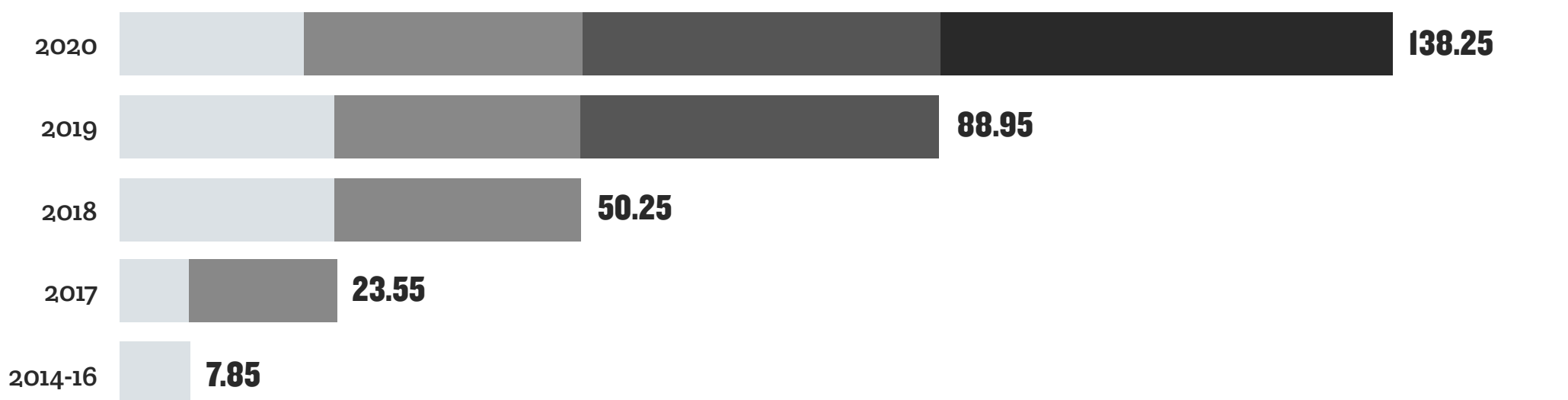
**Stefaan Verhulst**

**Co-founder and chief research and development officer of the Governance Laboratory @NYU (GovLab), sparks & honey Advisory Board member**

Figure 7.0

# GROWTH IN SMART SPEAKERS IS ACCELERATING THE SMART HOME CATEGORY

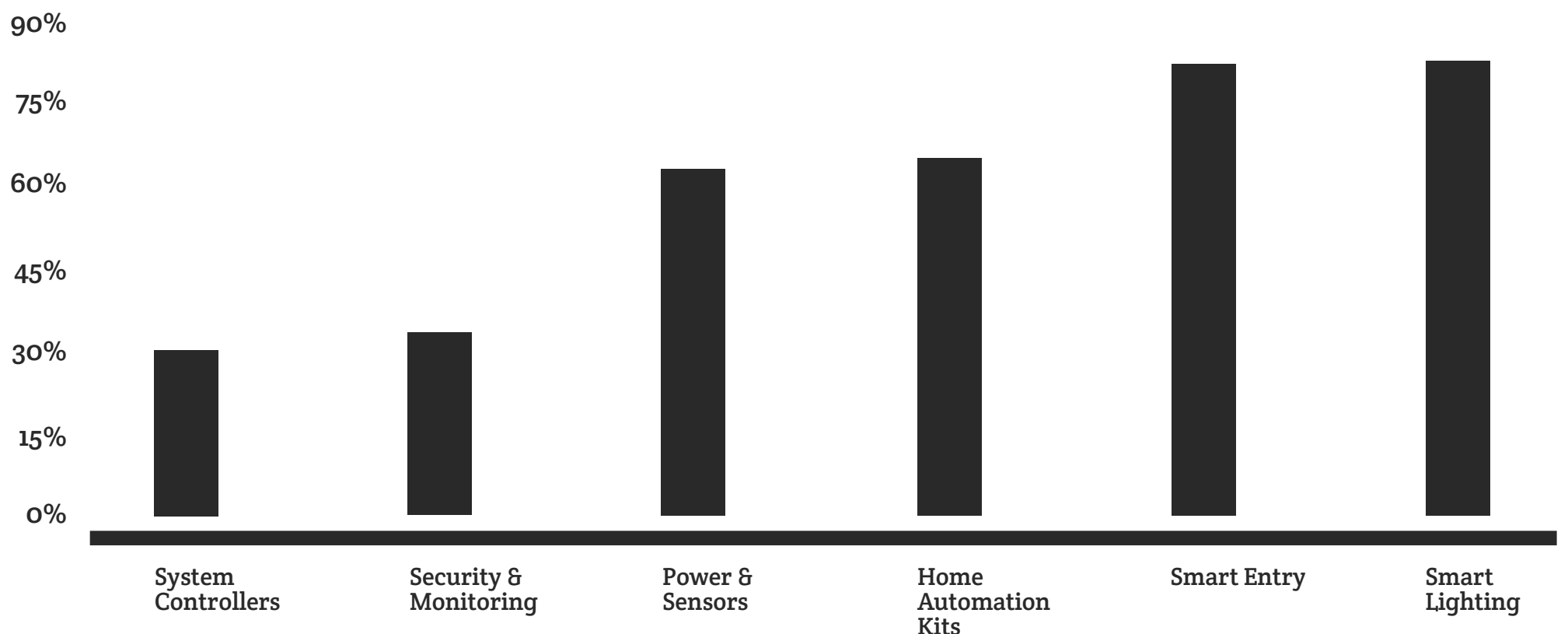
**US Smart Speaker Installed Base - 2016 to 2020**



Total Number of Smart Speakers (Millions)

Source: CIRP, VoiceLabs, Statista, Edison Research, Voicebot.ai

**US Dollar Sales Growth Year to Date**

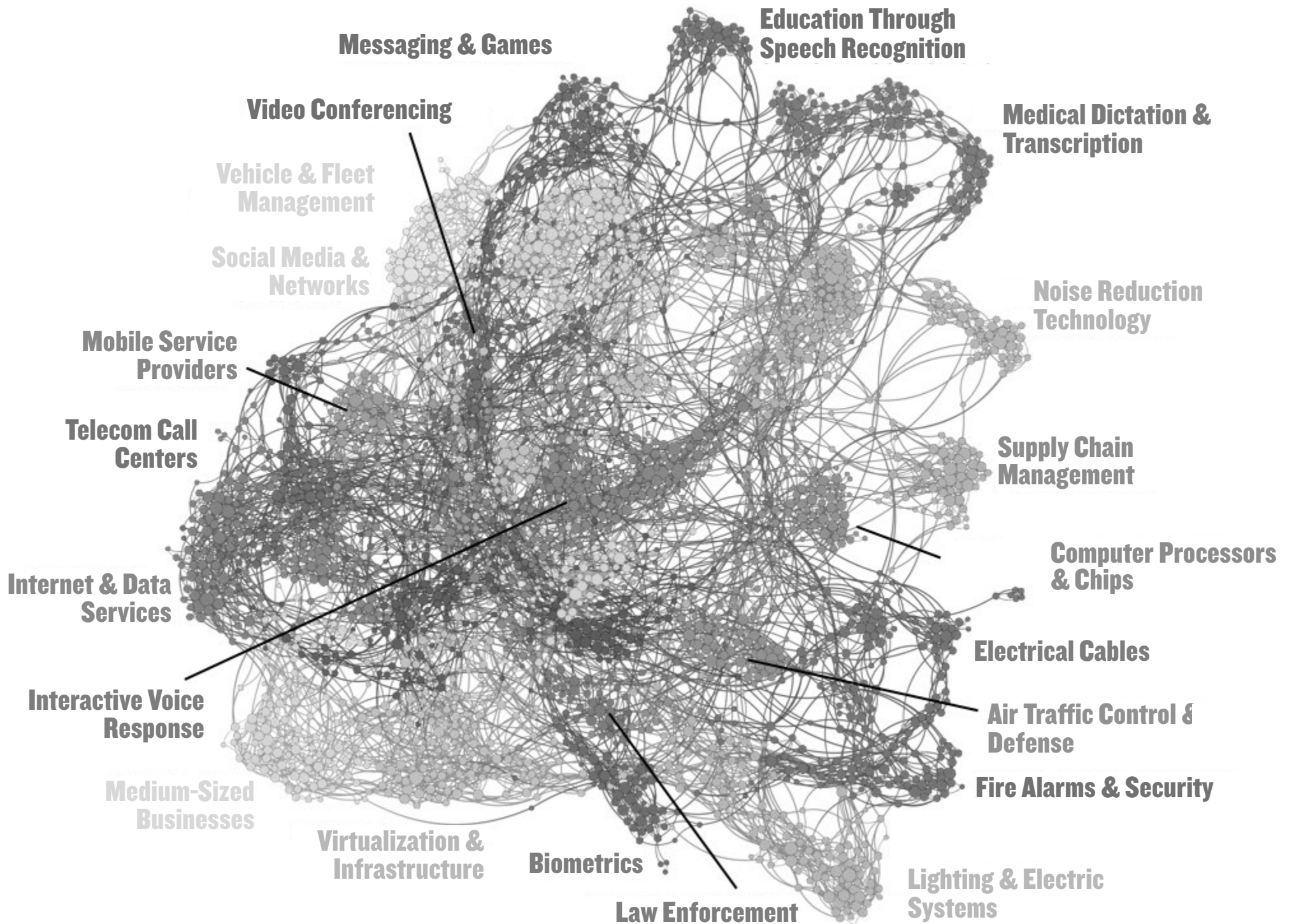


Source: The NPD Group/Retail Tracking Service, Jan.-Aug. 2017 vs. Jan.-Aug. 2016

Figure 8.o

# VOICE TOUCHES A HUGE NUMBER OF INDUSTRIES, FROM MEDIA TO MEDICAL AND LAW ENFORCEMENT

More than **2,000** companies and institutions have applied for patents related to voice computing in the past year

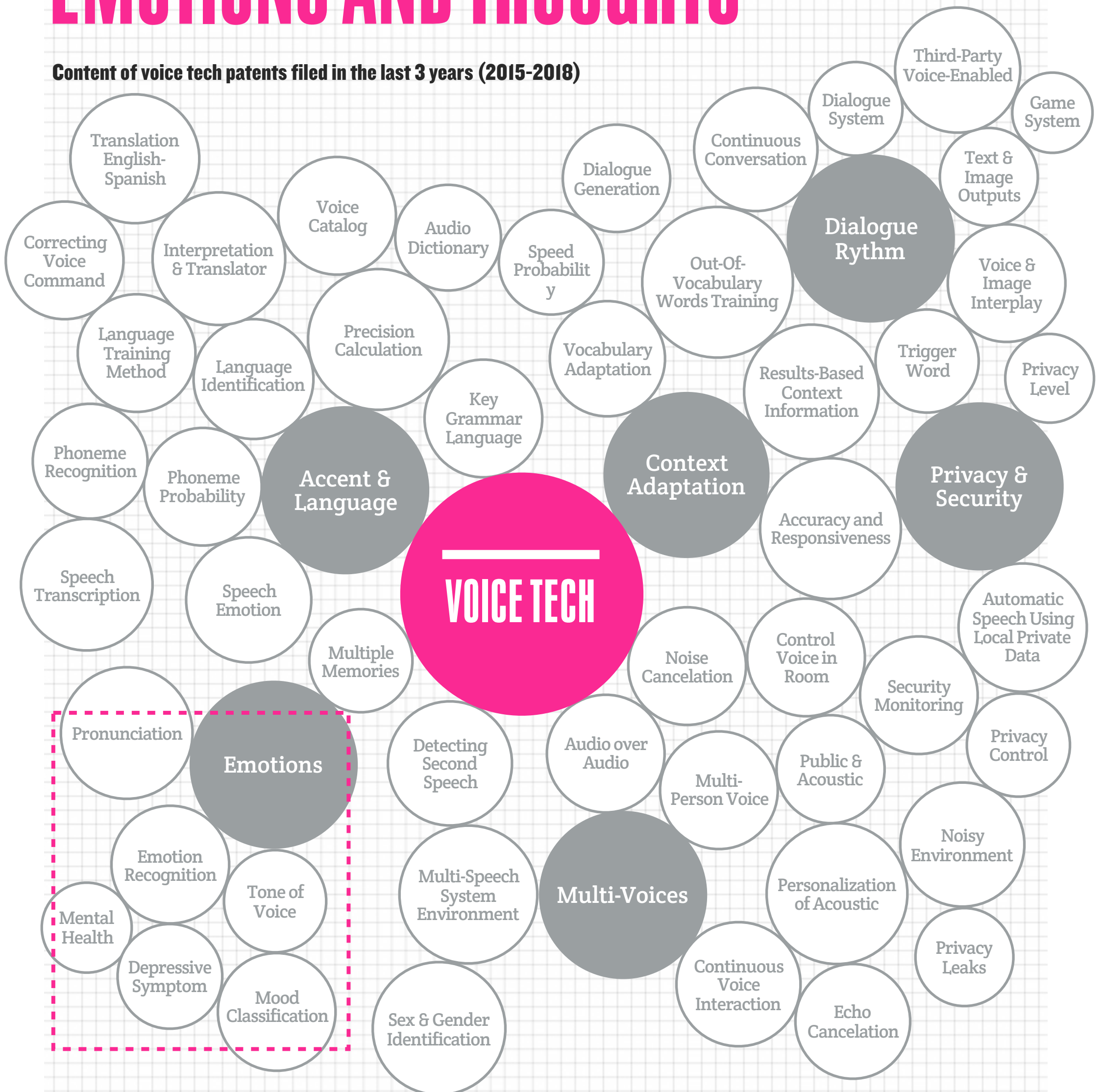


Source: Quid

Figure 9.0

# THE FUTURE IS ALREADY HERE MACHINES UNDERSTAND OUR EMOTIONS AND THOUGHTS

Content of voice tech patents filed in the last 3 years (2015-2018)



Source: Quid

● Themes and volume of key words associated with it

○ Subjects associated with the themes

Size is representative



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**A FUTURE OF  
SELF-SOVEREIGNTY IN DATA**

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*Self-sovereignty is the idea that you can control and administer your own identity information.*

**Stefaan Verhulst**

**Co-founder and chief research and development officer of the Governance Laboratory @NYU (GovLab), sparks & honey Advisory Board member**



# A FUTURE OF SELF-SOVEREIGNTY IN DATA

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Tech entrepreneurs are already addressing the topic of privacy. The advent of digital verification with blockchain technology can make consumers the masters of their own data. Companies such as MadHive are working on a future in which ownership of data falls on the consumer, or co-creator, who shares it with businesses and organizations without giving up privacy. In this model, data becomes the link of a co-creator economy. People gain the benefits of hyper-personalization, transparency and security, while businesses benefit from access to data, without the burden of its ownership.

It's a glimpse into a future where the benefits of commerce and ownership of data do not need to be compromised, and in which redefined expectations of data privacy will render many organizations obsolete.

Governments are stepping in with a hawk-eyed view toward data regulation. In May 2018, the European Union's General Data Protection Regulation (GDPR) imposed stringent laws for technology companies and organizations in EU countries to ensure users' data privacy. "GDPR is really about who controls the data and under what conditions," said Stefaan Verhulst.

While systems and tools are emerging as authentication solutions, experts warn that they are also vulnerable to being hacked. In this accelerating cycle of unprecedented infrastructure upgrades, technological advancements, and scientific breakthroughs, it is easy to lose sight of who is responsible for what.

In fact, we can argue that most emerging areas of responsibility are taking shape so fast that traditional regulatory bodies are unable to even comprehend the technology itself, much less its implications. In the wake of the Cambridge Analytica scandal, the April 2018 U.S. Congressional hearings on Facebook's handling of user data reflect the ever-widening gap of knowledge between our legislators and the world-changing problems of technology.<sup>15</sup> Similarly, when the U.S. Supreme Court heard arguments in *Gill v. Whitford*, a case that hinged on math as the future of partisan gerrymandering, four of the eight justices voiced anxiety about using calculations to respond to questions about bias and partisanship.<sup>16</sup>

These examples highlight the increasing demand for new approaches to evaluate and constantly upgrade our social contracts. Before that is possible, however, the reality fueled by our technological advancements needs to be acknowledged by policy and legislators alike.

<sup>14</sup> Quartz, If the US Congress can't understand Facebook, they definitely can't fix it

<sup>15</sup> FiveThirtyEight, The Supreme Court Is Allergic To Math

*What if everything is publicly available?  
Imagine everything being out there, documented, distributed, and publicly available — people have not fully thought out the implications. Even if the system is trustworthy, which I'm bringing up that it's not.*

**Dr. Vivienne Ming**

**CEO of Socos, theoretical neuroscientist, and sparks & honey Advisory Board member**



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**TRUST IN THE AGE OF  
BLURRED RESPONSIBILITY**

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*When people feel vulnerable, they often gravitate toward whatever is loud, powerful and consistent; they interpret this as stability — even though it's not necessarily the 'right' thing.*

**Bing Chen**

**Digital creator and entrepreneur at Bing Studios, sparks & honey Advisory Board member**

# TRUST IN THE AGE OF BLURRED RESPONSIBILITY

The search for information, people and systems that we trust will be a constant for organizations to navigate in the future of commerce.

Organizations are taking on roles like the development of infrastructure that blend the private with the public. One example is Uber's new initiative with NASA and the U.S. Army's research arm, UberAir, in which the ride-sharing company aims to fly its vehicles 2,000 feet in the air for short-haul flights by 2023.<sup>17</sup> In its new venture, UberAir is bridging public and private partnerships, raising questions about its role in everything from air rights to infrastructure and passenger safety. The case of UberAir highlights the importance of trust placed in an organization as it grows into a major player across public and private sectors.

When the systems we are wired to trust, from data to science and technology, become vulnerable, earning and maintaining trust becomes not only essential but a more complex endeavor.

The stakes for businesses and governments are incredibly high, as we have seen in multiple studies that highlight the severity of our institutional trust crisis.<sup>18</sup> The stakes are also high due to the close relationship between personal data and future commerce practices which require an even more trusting relationship between the public and the brands and organizations they do business with.

To complicate matters, we are living through uncertain times where a polarized public is increasingly exposed to reality-manipulation technologies that will soon be so perfect that reality will be indistinguishable from fiction. These factors are challenging even the most acknowledged sources of objective facts and the tools that we turn to to build trust, including numbers and science.



<sup>17</sup> Mashable, Uber teams up with U.S. Army, NASA to develop flying taxis

<sup>18</sup> FiveThirtyEight, The Supreme Court Is Allergic To Math 2018 Edelman TRUST BAROMETER; The Atlantic, Trust Is Collapsing In America; Harvard Business Review, The Neuroscience of Trust  
Image: Nicolas Guarino and Chesky, Shutterstock



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**HOW DATA AND SCIENCE ARE  
VULNERABLE TO MANIPULATION**

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# HOW DATA AND SCIENCE ARE VULNERABLE TO MANIPULATION

Numbers, data and science have been seen as evidence of facts and mechanisms through which organizations can find common ground and build trust. If data speaks, we listen. Data is put on a pedestal as verified fact in understanding human behavior in a quantified way. But in a culture where scientific methodology is used as evidence of opinions, or even falsehoods, data becomes part of a long thread that connects a tenuous story of trust.

Scientists, economists and mathematicians are under pressure to distill complex theories into soundbite-worthy narratives in which headlines and data can become skewed.

In 2017, Uppsala University researchers claimed that fish prefer to eat plastic over food, but the study was proven to be scientific fraud.<sup>19</sup> When data is purposefully used to twist research hypotheses, consumers' trust in publishing and media suffers, too. Some scientific journals are losing clout, as fake research papers get published,<sup>20</sup> like one based on "Star Trek: Voyager's" worst episode.

In China, individual data is being used as social currency, with the country's government as its final arbiters. The system sounds like a "Black Mirror" episode, where the punishment for having "bad" social credit can include being banned from public transportation for a year.<sup>21</sup> The hacking of data can consequently lead to a broader mistrust of institutions that maintain control over your data trail.

At the same time, Chinese citizens are investing in local activism — donations to non-government civic organizations have quadrupled<sup>22</sup> since 2007 to \$16 billion in 2016. The Chinese model is a signal of a rising tide of local activism that mirrors the shift of people turning toward smaller businesses. Under the social credit system, the people are building their own model of trust by focusing on local activism.

Formulate strategies based on the understanding that trust is emotionally charged; you are asking people for an increased level of intimacy when it comes to sharing their data.

<sup>19</sup> Sciencemag.org

<sup>20</sup> Gizmodo, Fake Research Paper Based on Star Trek: Voyager's Worst Episode Was Published by a Scientific Journal

<sup>21</sup> The Verge, China will ban people with poor 'social credit' from planes and trains

<sup>22</sup> WGSN, Future Consumer 2020

*Now this data can be utilized to have sway over you. Certain scores mean you aren't allowed to do certain things. This becomes a punitive system and any trust that was in that environment changes.*

**Dr. Fiona Kerr**

**Industry professor, neural and systems complexity at University of Adelaide**



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**ORGANIZATIONS AS  
INFRASTRUCTURE ARCHITECTS**

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## INFRASTRUCTURE ARCHITECTS IN ACTION:

**When snow covered the popular running paths in Boston, New Balance plowed them clear for the public and runners alike.<sup>23</sup>**

**The Westin will use its discarded bedsheets to provide pajamas for children in need.<sup>24</sup>**

**Following the spate of school massacres, retailers Dick's and Walmart moved to raise the minimum age for gun buyers to 21.<sup>25</sup>**

**YouTube, owned by Google, is also distancing itself from gun violence by banning YouTube videos containing gun or gun accessories sales or promotion.<sup>26</sup>**

**DoNotPay, a free app developed by 21-year-old Joshua Browder, is helping victims of the Equifax breach file lawsuits against the credit rating company. To date, at least 50 cases have been won in initial judgments.<sup>27</sup>**

**Airbnb's Samara innovation lab designed a communal housing project to revitalize a small town in Japan, with the aim of forging a path into urban planning by focusing on declining small towns around the world.<sup>28</sup>**

# ORGANIZATIONS AS INFRASTRUCTURE ARCHITECTS

Where institutional trust is eroding, organizations can step in to rebuild and instill confidence in the functions of a society, and by association, the consumers it serves. In return, acting as infrastructure architects could become a longstanding “loyalty” program for society, one that cannot be measured in points.

Private sector organizations are only on the cusp of understanding what their involvement as infrastructure agents means for their future — and how this different role plays out in public life.

Uber's autonomous vehicles tests came to a halt when one of its vehicles hit and killed a pedestrian in Arizona. The state has since suspended Uber's self-driving vehicle testing.<sup>29</sup> The company's innovation and subsequent foray into the roads, transportation systems and the population at large has far-reaching consequences for safety, policy, and the future of automation.

A stepping stone would be to construct a dialogue with the society it now serves, which includes not just consumers but everyone.

Trust in your organization is integral to the development of products and services of on-demand manufacturing – a lack of trust will result in the crowd economy going elsewhere.

<sup>23</sup> Boston Magazine, New Balance Is Keeping Running Paths Clear This Winter

<sup>24</sup> Fast Company, Westin Is Turning Discarded Bedsheets Into Pajamas For Kids In Need

<sup>25</sup> The New York Times, Walmart and Dick's Raise Minimum Age for Gun Buyers to 21

<sup>26</sup> The Wall Street Journal, YouTube Bans More Firearms Videos Amid Gun Debate

<sup>27</sup> CNN Money, This 21-Year-Old Made a Free App That Helps People Sue Equifax — and It's Working

<sup>28</sup> Fast Company Design, An Exclusive Look At Airbnb's First Foray Into Urban Planning

<sup>29</sup> NPR, Uber Won't Seek Calif. Permit to Renewal To Test Self-Driving Vehicles After Fatal Crash

*The consumer's problem today is not the scarcity of product. What they are lacking is the human connection.*

**Vicki Cantrell**

**Retail transformation officer at Aptos, and sparks & honey Advisory Board member**



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**ORGANIZATIONS BRIDGE  
PUBLIC AND PRIVATE SECTORS**

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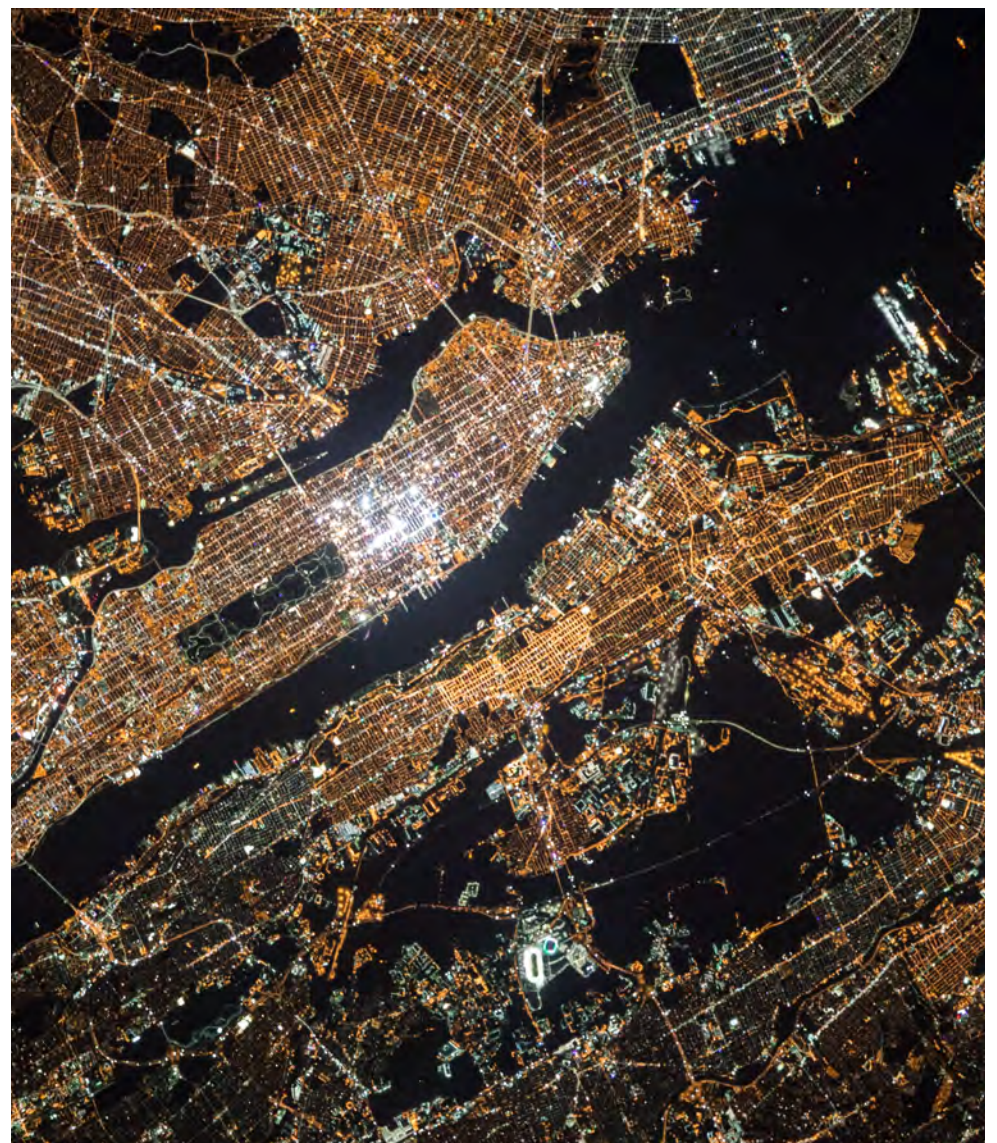
# ORGANIZATIONS BRIDGE PUBLIC AND PRIVATE SECTORS

When organizations assume roles that expand beyond their organizational functions into the public sphere, they are stepping into a grey zone that requires a new model of operation. This leans on a people-focused cooperation between organizations, brands, the public and even local governments.

In 2016, only 27 percent of Americans surveyed trust their government institutions (Figure 10: Trust in government is eroding).<sup>30</sup> Given the low trust in governments, the commercial sector has an opportunity to build on that deficit. That sentiment is echoed in global research on authenticity by FleishmanHillard, which revealed that 63 percent agree that global companies should take a lead in driving the interchange of ideas, products and culture when a government creates policies that support isolationism.<sup>31</sup>

An organization taking on a role that bridges public and private sectors means having an open dialogue with all stakeholders, including voices from the public. Discussing the building of future smart cities, Dr. Laura Forlano said, “You need coordination among brands, companies and government. With large-scale socio-technical problems, you need to have conversations and coalitions with advocacy and citizen associations,” said Forlano, associate professor of design and director of the Critical Futures Lab at the Design Institute of Illinois, and sparks & honey Advisory Board member.

Opportunities to bridge trust where it is otherwise wavering exist beyond the walls of your organization; taking on the role of an infrastructure architect requires casting a broad net of two-way communications that considers humanity, policy, urbanization, and responsibility.

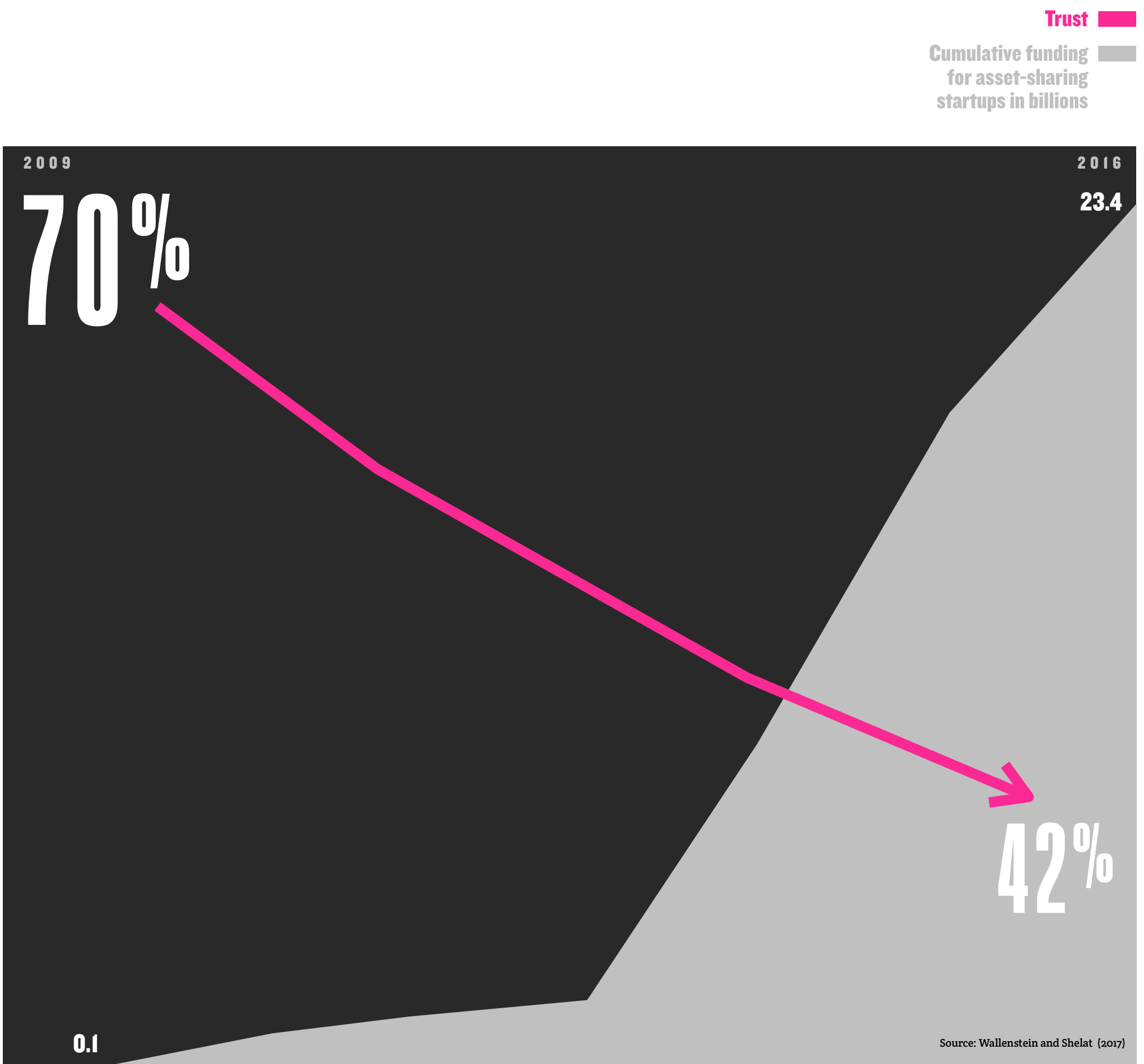


<sup>30</sup> Pew Research

<sup>31</sup> FleishmanHillard, Authenticity Gap Report: Authenticity in an uncertain world  
Image: NASA, Unsplash

Figure 10

# ONLY 27% OF AMERICANS TRUST THEIR GOVERNMENT INSTITUTIONS IN THE U.S.



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**BALANCING TRUST BETWEEN  
HUMANS AND TECHNOLOGY**

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# BALANCING TRUST BETWEEN HUMANS AND TECHNOLOGY

Technology is an authority that has our ears and allegiance. We implicitly trust wearables to translate our internal dialogue with the outside world.<sup>32</sup> In fact, self-tracking tools, such as wearables, are seen by many as an “a democratizing force” that empowers people in terms of their own health management and quantification.<sup>33</sup> The proximity of technology can mean a closeness with the human body that implies it’s a part of our being and therefore worthy of our trust. This is seen in innovations such as MIT’s wearable device that can “hear” the words you say in your head, as subvocalization signals are detected by electrodes and turned into words using AI.<sup>34</sup>

“The closer proximity you have to someone or something, the greater your relationship is. It’s why humans convene proactively and retroactively — because they are in similar proximity,” said Bing Chen, digital creator and entrepreneur at Bing Studios, and sparks & honey Advisory Board member.

Technology may minimize human error, but when we’re faced with a judgment call or a value-based decision, it’s human interaction that becomes the premium.

The trust placed in automation versus humans is a growing tension in culture. A few months after the launch of Amazon’s cashierless store, Amazon Go, the company found the behavior patterns of its customers to be curious.<sup>36</sup> People were confused about when they could actually “go,” as in exit the store. Simply walking out without a

checkout or human interaction seemed baffling to many, and customers would linger, confused, before asking if it was okay to leave. As it turned out, it was.

The signals we absorb from human interaction validate whether or not we see information as trustworthy. According to the neuroscience of engagement, the “feeling” of trust is part of a process.

**“When you are being spoken ‘with’ instead of ‘at,’ it shapes whether or not you see this information as valid,” said Dr. Fiona Kerr, industry professor, neural and systems complexity at University of Adelaide.**

Understanding and being able to communicate the nuances of human language has the power to turn AI into a foolproof human, as evidenced by Google’s Assistant, which will soon be able to make phone calls on your behalf, according to CEO Sundar Pichai.<sup>37</sup> The voice of the assistant sounds remarkably natural thanks to AI developed by the company, called Google Duplex.

<sup>32</sup> Forbes, In 2016, Users Will Trust Health Apps More Than Their Doctors

<sup>33</sup> Sage Journals, Trust and privacy in the context of user-generated health data

<sup>34</sup> Engadget, MIT’s wearable device can ‘hear’ the words you say in your head

<sup>35</sup> Wall Street Journal, The Cure for Decision Fatigue

<sup>36</sup> Adweek, Here’s What Amazon Has Learned in Its First 3 Months Running a Store with No Cashiers

<sup>37</sup> The Verge, Google just gave a stunning demo of Assistant making an actual phone call



*AI can be a filter to get us halfway, and added to our qualitative skills and the qualitative assessments of people we trust — then we have a near-term solution.*

**Bing Chen**

**Digital creator and entrepreneur at Bing Studios, sparks & honey Advisory Board member**

**ALGORITHMS EASE  
OUR MENTAL LOAD  
AN AVERAGE ADULT  
MAKES 35,000  
DECISIONS DAILY<sup>35</sup>**



<sup>35</sup> Wall Street Journal, The Cure for Decision Fatigue

*Do you want a robot to hold your hand when you die? I haven't found anyone yet who said yes. Everyone wants a human — there are massive differences in your body when you are with a human being in a state of anxiety.*

**Dr. Fiona Kerr**

**Industry professor, neural and systems complexity at University of Adelaide**

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**TRUST IN A WORLD OF ALTERED  
PERCEPTIONS & FRAGMENTED REALITY**

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*The thing about the information economy is it's easy to create, but hard to trust. And it's easy to spread, but hard to control.*

**Ping Fu**

**Co-founder of Geomagic, sparks & honey Advisory Board member**

# TRUST IN A WORLD OF ALTERED PERCEPTIONS & FRAGMENTED REALITY

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There is a cultural shift from understanding truth as a grounding, universal principal to one that is individual and mutable. Oprah and other public figures have used the term “Your Truth” as opposed to “The Truth.” Even the words we turn to to describe truth are evolving.

“Post-truth” was named the word of the year in 2016 by the Oxford Dictionary.<sup>38</sup> And use of the term “fake news,” heard so often we’ve almost become numb to it, increased by 365% in 2017.<sup>39</sup>

This quest for the “truth” is challenging our subjective perceptions, and influencing how we not just view the world, but how we relate to brands, select products, and experience services.

As covered in previous sections throughout this report, commerce is stepping into a more intimate and personal territory, which heightens the stake and value of public trust. Consequently, earning trust is business-critical for organizations of all sizes. But to earn this trust demands an understanding of the evolving relationship with truth amid a tsunami of reality-manipulation technology.

When discerning what is real from the not-real, the lines are increasingly blurred due to the technology that can rewire our senses and/or create alternate realities.

The war on fake news and misinformation is in full force (Figure 11: Startups fighting misinformation), with

startups such as Factmata<sup>40</sup> emerging to help fix the spread of “fake news,” biased stories, or simple clickbait stories across various media platforms. While the company is still piloting different services, such innovations show the growing need of plug-in services that will help us decipher facts and reality from misinformation and the sources that disseminate it.

In addition to such truth-policing technology, rapidly emerging reality-manipulation technologies will make the techniques and methods use to manipulate the public today like child’s play.

We may be on the cusp of creating perfect alternate realities that are indistinguishable from “real” life, causing us to question the very realities we experience with all of our senses. How many senses are we able to hack in the quest to create these new parallel realities, and how far can we really push reality-manipulation technologies? Let’s take a look at just how malleable truth is.

<sup>38</sup> Oxford Dictionaries, 2016

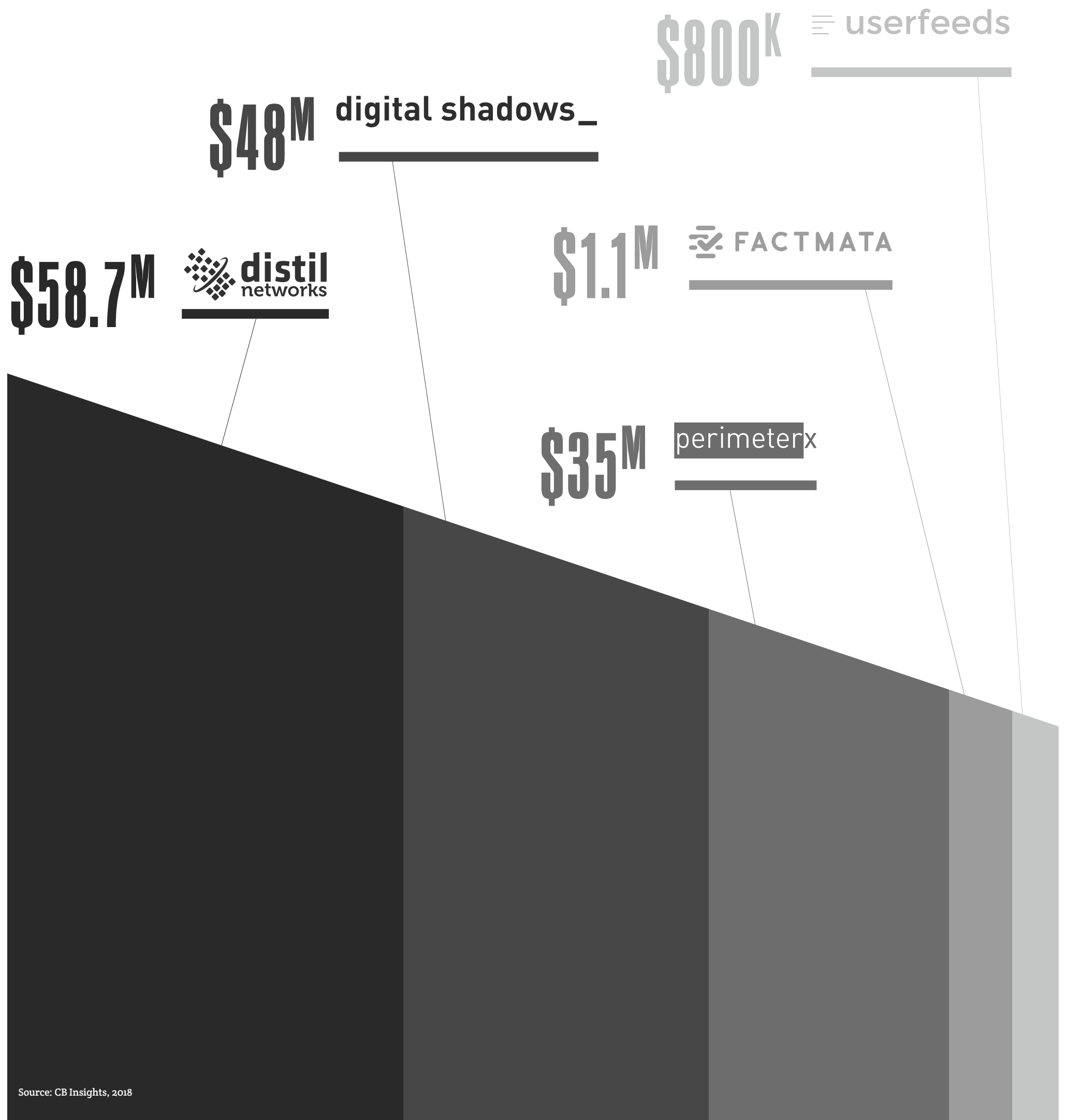
<sup>39</sup> Scientific American, Is Truth an Outdated Concept?

<sup>40</sup> TechCrunch, Factmata closes \$1M seed round as it seeks to build an ‘anti fake news’ media platform

Figure 11

# STARTUPS FIGHTING MISINFORMATION

**\$143.6M** Funding



Source: CB Insights, 2018



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**ALTERED PERCEPTIONS: HUMAN  
SENSES ARE BEING HACKED**

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*We have a lot of data generated by technology, but it does not mean that we have more knowledge; In fact, the noise to signal ratio may become wider.*

**Ping Fu**

**Co-founder of Geomagic, sparks & honey Advisory Board member**

# ALTERED PERCEPTIONS: HUMAN SENSES ARE BEING HACKED

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The old “seeing is believing” adage no longer holds true when we make decisions based on a flurry of information, received from multiple directions, platforms, and people. We can no longer trust our human senses to discern what we consume.

Truth has traditionally been a malleable concept. In the future, however, our notions of truth could become indistinguishable from fiction when truth is defined by one perception over that of another. Our perceptions of truth are increasingly being challenged by reality-manipulating technologies (Figure 11: How our senses are being hacked).

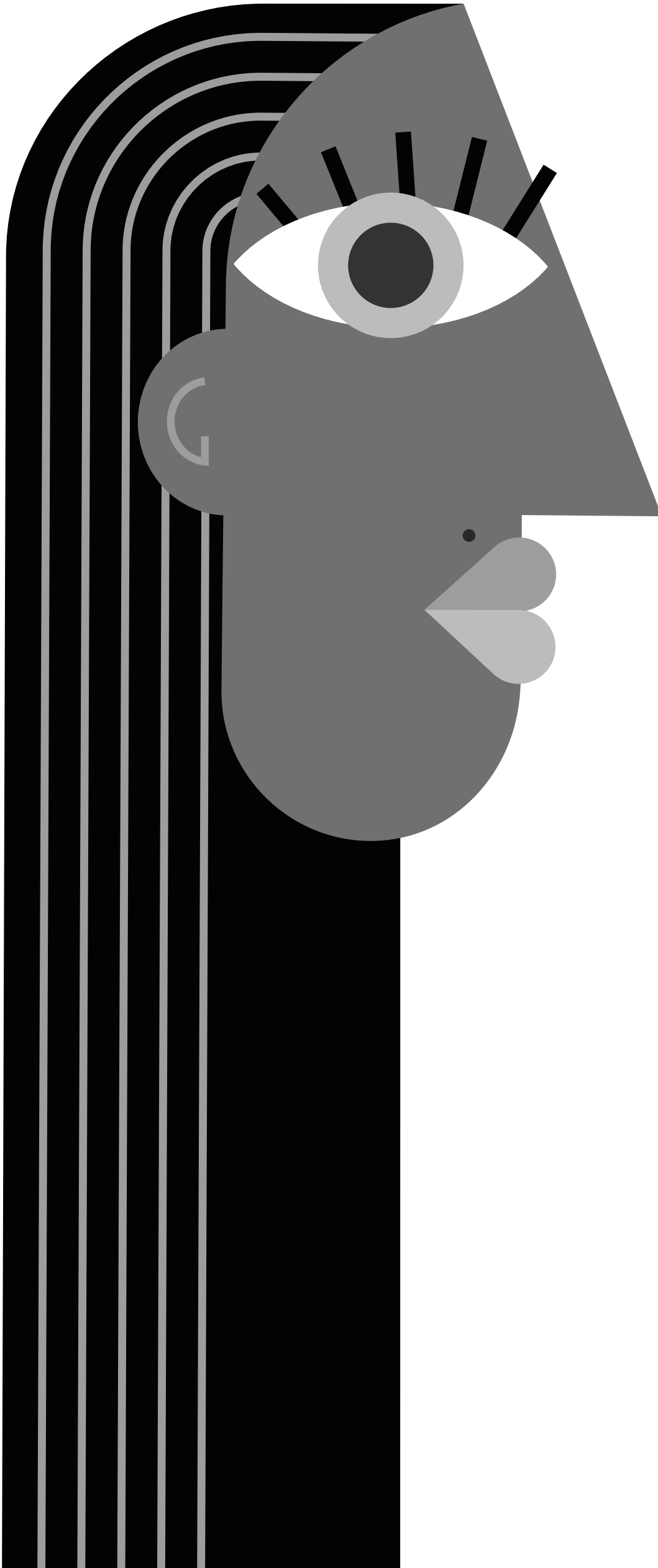
Theoretical neuroscientist Dr. Vivienne Ming refers to the proliferation of cognitive modeling technology, or “brain hacks,” in which the messages delivered to each consumer emphasize vulnerabilities in that individual’s belief space. Dr. Ming acknowledges the positive use of brain hacks, but she also believes that they have exploitative power.

“It’s a way of hacking into the brain, getting it to process information in a way that it would not without manipulation. This is about how people perceive that information,” Dr. Vivienne Ming said.



Figure 12

# HOW OUR SENSES ARE BEING HACKED



## Brain

Cognitive modeling technology enables the manipulation of how information is processed and perceived.

Source: Dr. Vivienne Ming

## Sight

Face2Face’s “expression-replacing” technology allows you to manipulate the facial expressions of a person in a video in real time. Similar DeepWarp tech changes the gaze on a face, too.

Researchers from the University of Washington have created a new tool that takes audio files, converts them into realistic mouth movements, and then grafts those movements into an existing video, resulting in a video of someone saying something they didn’t.

Source: Washington Post, Here are the tools that could be used to create the fake news of the future (for DeepWarp part) Source: Skolkova Institute of Science and Technology

## Ears

Adobe’s “photoshop for audio” lets you create entirely new sentences using a person’s voice. Dubbed VoCo, the technology breaks down voice data into phonemes (each of the distinct sounds that make up a spoken language), and then creates a voice model of the speaker.

Source: Washington Post, Here are the tools that could be used to create the fake news of the future

## Taste

Scientists at the University of London have developed Taste Buddy, an invention that emits electrical currents to stimulate taste buds so that the mouth perceives sweet or salty flavors even when they are not really present.

Source: Digital Trends, Lips like sugar

## Touch

Tanvas’ haptic feedback technology allows you to feel different textures on a touchscreen.

Source: CB Insights

## New Realities

Nvidia’s AI has created the most convincing and detailed photorealistic pictures of fake celebrities.

Google’s Tacotron 2 is now able to create speech from text that sounds so close to human speech that it is difficult to tell the difference.

Ultrahaptics is working on letting people feel and manipulate virtual objects in the air.

Source: CB Insights  
Washington Post, Here are the tools that could be used to create the fake news of the future

**MANIPULATING HOW WE  
SEE THE WORLD**

*People need to be more skeptical. There have to be more ways for us to verify authenticity online. We are only beginning to figure out ways for consumers to know when something is authentic. We're not even close to big solutions yet, we are just scratching the surface.*

**Geraldine Moriba**

**Founder of Moriba Media, sparks & honey Advisory Board member**

# MANIPULATING HOW WE SEE THE WORLD



Increasingly physically disconnected from one another, we rely on agents to connect and enhance our visual representations.

The same holds true for the manipulation of appearances through digital platforms that alter how we are seen. Tools such as Shiseido's Telebeauty app, developed with Microsoft Japan, calibrates skin tone and applies digital makeup to your face on a video-conferencing call, elevating your on-screen image into a seemingly more appealing version. It's one example of how a technology that helps us enhance our reality, or appearance, is actually manipulating how we are seen.

In China, people are taking the mastering of selfies to a whole new level — some spend as much as 45 minutes on a carefully curated face.<sup>41</sup> Installed on more than one billion phones, the Meitu app is designed “to make the world a more beautiful place,” per its motto. The long-term effects of online beautification mean standards of beauty are shifting to a camera culture version, further removed from reality.

Innovations like these serve the growing tide of lives structured around remote working and communicating, in a world where physical presence is becoming a premium — and where an altered version of your face becomes part of your remote identity.

The ability of technology to manipulate perceptions has implications for the reputation of organizations in a global, collaborative and virtual world, dictating how we engage and communicate with the crowd economy.

<sup>41</sup> The New Yorker, China's Selfie Obsession  
Image: Tom Sodoge, Unsplash

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**MANIPULATING PERCEPTIONS  
THROUGH SOUND & VOICE**

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# MANIPULATING PERCEPTIONS THROUGH SOUND & VOICE

**50%** of all searches will be voice searches by 2020<sup>44</sup>

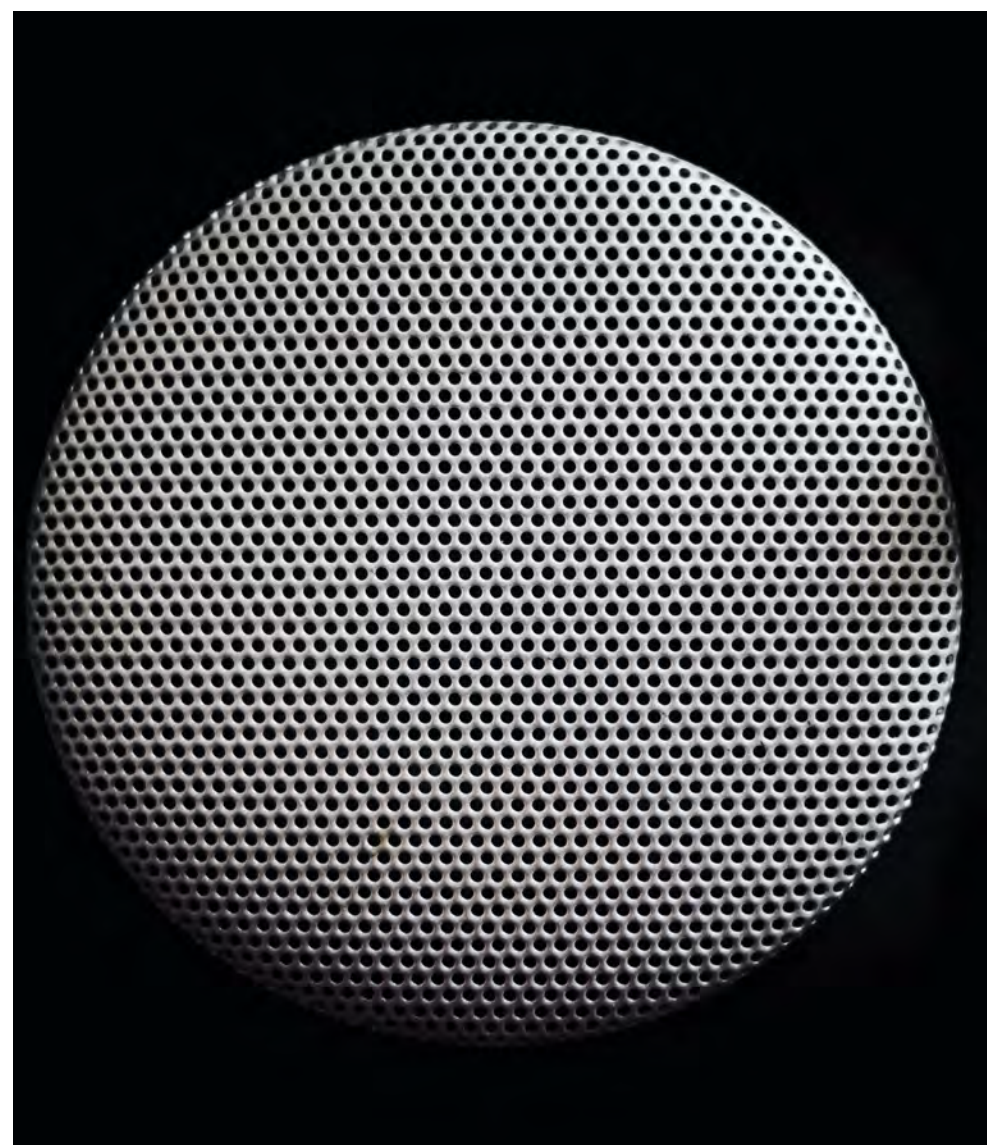
Technologies that speak to us, quite literally, or tap into our auditory senses have the ability to alter our perceptions of truth, and even change behaviors.

Consider developments in AI that aim to generate “natural-sounding” human speech from text, such as Google’s text-to-speech (TTS) systems.<sup>42</sup> It could have the ability to evoke the “sound” of a friend, public figure or fictional character through text by a sequencing model that maps letters to a sequence of features that encode the audio.

Our ears may become a means of entering immersive mixed-reality worlds. Innovations like spatial audio for immersive sound experiences allow for sound to come from all sides in a virtual reality space, thereby completely absorbing your senses in a virtual environment.<sup>43</sup>

The proliferation of voice-assistants means we are turning to them not just as assistants, but as the voice of our moral compass. We may ask them what they think of our relationships or where we should go on vacation. Or, as the recent demo of Google’s Assistant showed, we will make hair appointments with them. Our interactions with voice assistants rely on humans to bring them to life, and through those interactions, narrow the divide of robot and human life. The voices we hear, even the automated ones, have the ability to change our perceptions.

Organizational innovations that focus on voice-centric communications with a human element can build transparency among consumers.



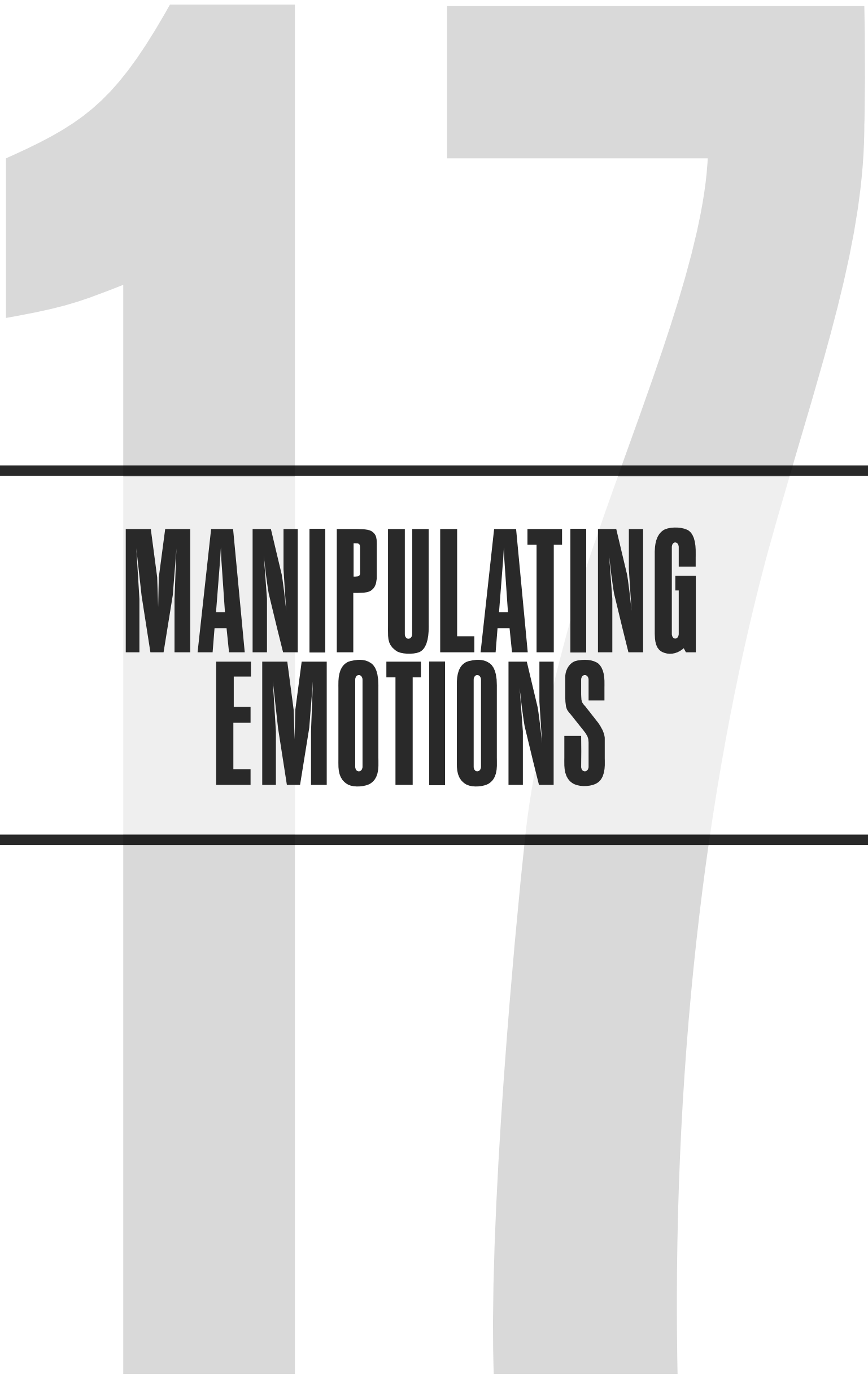
<sup>42</sup> Google Research Blog, Expressive Speech Synthesis with Tacotron

<sup>43</sup> NPR, A beginner’s guide to spatial audio in 360-degree video

<sup>44</sup> Comscore

Image: Kyle Johnston, Unsplash





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**MANIPULATING  
EMOTIONS**

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# MANIPULATING EMOTIONS

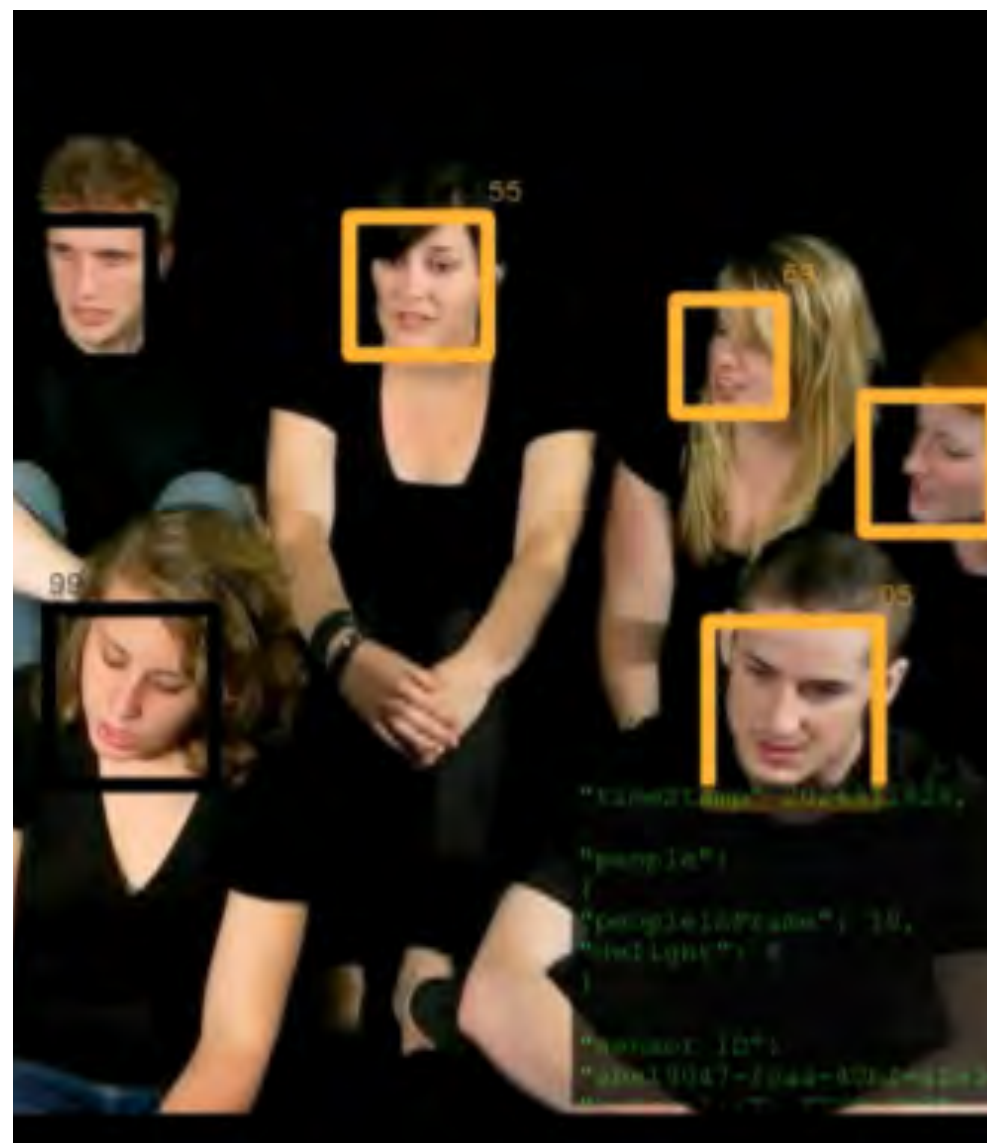
Our behaviors can be altered as we absorb visual cues related to others, via technology that has the ability to shift our perceptions and emotions.

Developments in facial recognition and emotion-detecting technology, such as MIT's empathy-building app that detects emotional cues in conversation,<sup>45</sup> can provide real-time updates on what people are thinking. Similarly, UK-based deep-tech startup Sensing Feeling has developed sensors that detect faces and classify the emotions being expressed. Designed to replace traditional survey methods in retail environments, the sensors' image-processing is done at the edge "in a manner that is entirely GDPR friendly," according to the company.

Our perceptions of emotions can also be hacked through purposeful design.

Your gaze can be manipulated using DeepWarp<sup>46</sup> technology, which provides photorealistic images of your altered expression. Similar technology is used to manipulate not only static images but moving video. The practice of face-swapping on video has birthed the "deepfakes" genre in the dark corners of the web, in which familiar faces are seamlessly edited to appear in illicit sex acts. It's been called one of the most invasive forms of identity theft that is enabled by technology.<sup>47</sup>

The advent of technologies such as Face2Face<sup>48</sup> allows for a third party to be able to animate the facial expressions and movements of a target in a video. The photo-realistic results have widespread ramifications, considering that media content can be tweaked for the express purpose of sending unintended messages. Algorithms and research labs are rapidly developing more sophisticated tools for mapping facial expressions and the copying of voices with precision. Together, these developments are inviting an era of unprecedented manipulation of perceptions and identity.



<sup>45</sup> The Verge, MIT built a wearable app to detect emotion in conversation

<sup>46</sup> Skolkova Institute of Science and Technology

<sup>47</sup> The Atlantic, The Era of Fake Video Begins

<sup>48</sup> Developed by researchers at the University of Erlangen-Nuremberg, the Max Planck Institute for Informatics and Stanford University

Image: Sensing Feeling

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**COMMERCE AT THE INTERSECTION  
OF ALTERNATIVE REALITIES**

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# COMMERCE AT THE INTERSECTION OF ALTERNATIVE REALITIES

When our senses are hacked, the trust we have in our ability to discern truth is diminished. As a result, we will increasingly need to cross-reference or check our reality against the experiences of others. In this context, reputation becomes even more valuable as an engine of commerce.

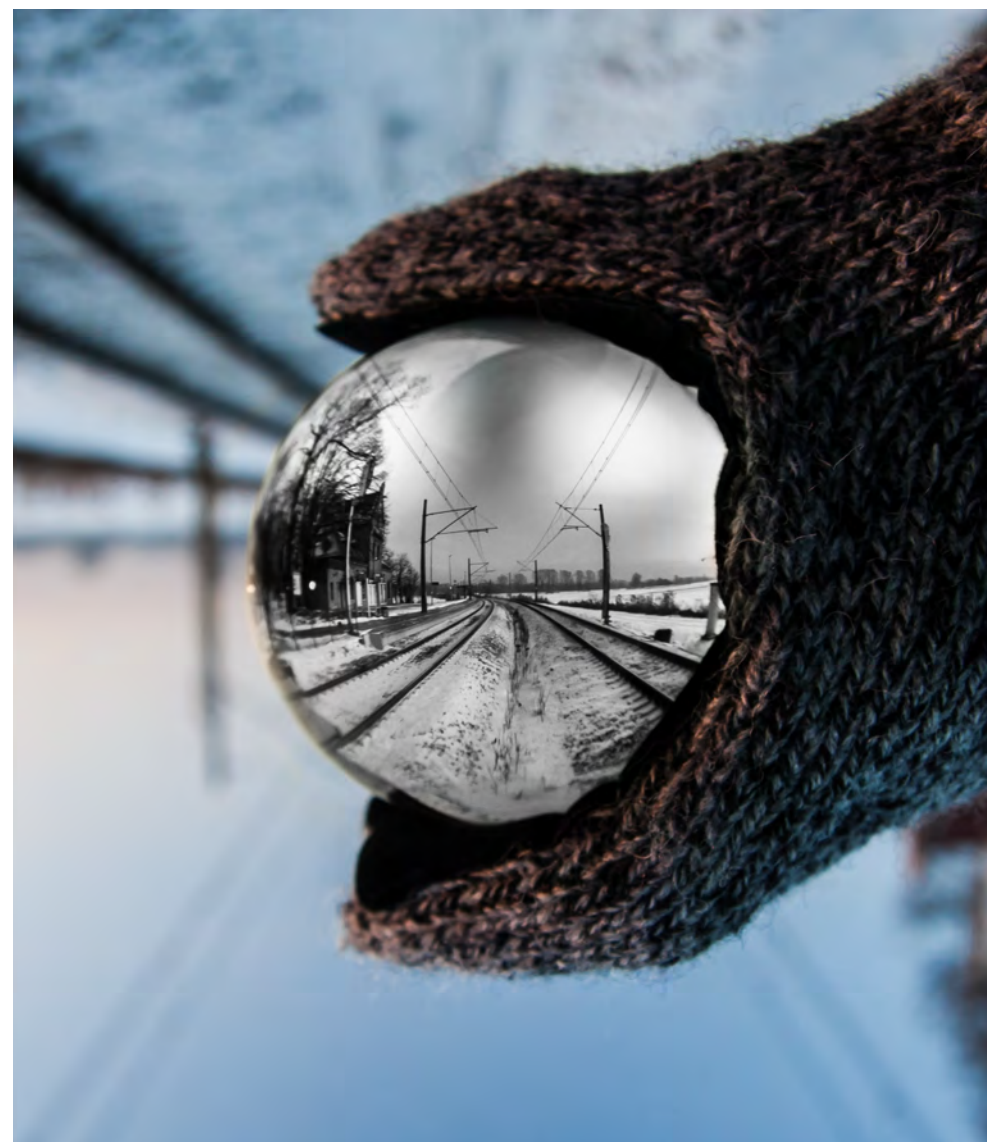
How do we create and protect this currency in a world of deep fakes and alternative realities? Can commercial entities play a credible role in mediating truth and reputation? What verification tools and filters can counter the powers of reality-manipulation technologies?

Answering these questions and more will demand the skills to understand how people construct truth, verify sources, define authority, and construct beliefs in a world of alternative realities. These skills will not only be fundamental to businesses and governments but will also present the opportunity to redraw the lines that define responsible corporate citizens.

The choices we make today in the face of accelerating change must be informed by a comprehensive and systematic view of the forces shaping commerce and the social contract that has made growth and prosperity possible over the last several decades.

The world that is taking shape now is one in which commerce will be driven by our most intimate data; where earning trust can make or break any organization, public and private, no matter its institutional value; and where our reality can be hacked and splintered in ways that make recent fake news controversies quaint at best. The stakes are high and will only continue to rise.

Image: Dawid Zawila, Unsplash



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**5 STEPS TOWARD A PREFERABLE  
FUTURE OF COMMERCE**

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# 5 STEPS TOWARD A PREFERABLE FUTURE OF COMMERCE

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## 1

**Assess your data strategy against new and future data verticals.**

Think outside of your data box — consider data beyond demographics, media consumption, and self-reported customer data to a future that includes data from emotion states, genetics, smart homes and even smart cities. These will become the data sources for your future development of products, services, marketing and strategy. It may sound like sci-fi, until you realize that the same key tech players that have perfected the use of data as you know it today are the ones who are heavily investing in emotion-technologies, genomics and AI.

## 2

**Assume that General Data Protection Regulation (GDPR) is only the beginning. Prioritize plans to develop or upgrade data sovereignty policies, technologies, and practices.**

Data privacy and ownership is becoming a heated topic that will define how your organization can use data. Consider how you can help people understand and take ownership of their data with companies such as Mad Hive that view data privacy as a human right, and use that as a starting point to reevaluate your data policies. Secondly, understand that new generations are much more aware of the value of their own data, so assume that you have a responsibility to meet their perceived value in equal terms.

## 3

**Acknowledge the blurred responsibilities of your organization and take ownership of initiating dialogue with stakeholders in the public arena.**

Consumers expect you to be responsible in a way that extends well beyond typical cause marketing or checking the box on social corporate responsibility. This new era of responsibility means having a role in areas that have a direct impact on your world, such as building schools and parks or decreasing your carbon footprint. Acknowledge your role and responsibility and spearhead communications with all stakeholders, including the public.

# 5 STEPS TOWARD A PREFERABLE FUTURE OF COMMERCE

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## 4.

### **Embrace your role as an infrastructure architect.**

Where institutional trust is eroding, your organizations can step in to rebuild and instill confidence in the functions of a society, and by association, the consumers it serves. In return, acting as infrastructure architects is a means of not only building confidence in the functions of society, but instilling trust in your organization.

## 5.

### **Develop verification strategies to counter manipulated realities enabled by technology that affect your business and the lives of all of your stakeholders — customers, employees, your community and others.**

Empower your organization and customers with strategies and authentication tools that allow for radical transparency in every facet of the supply chain. The effects of a fragmented and manipulated reality can have a direction influence on everything from your reputation as an organization to marketing, distribution, and the provenance of your products and services.

2020

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**APPENDIX**

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# ABOUT Q™

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Q™ is sparks & honey™'s cultural intelligence system, an active learning system that blends data and social sciences and that helps shape solutions for world-changing challenges. The system draws on a wide variety of thought leaders and cultural observers from around the world, while applying a combination of proprietary methodologies, tools, algorithms, and human insights to provide cultural intelligence, data analytics, and transformative strategies to a diverse range of organizations.

# CONTRIBUTING THOUGHT LEADERS

**Expert interviews conducted with nine contributing thought leaders, eight of whom are members of sparks & honey's Advisory Board.**



## Tom Bollich

CTO, MadHive, sparks & honey Advisory Board member

Tom Bollich is a technologist, entrepreneur and advisor specializing in the "gamification of economies."

Before advising various Fortune 500 companies on gamification, he was a founding team member and founding Studio CTO at Zynga, creator of games like FarmVille, Words with Friends and Mafia Wars.

Tom has been at the forefront of turning many disruptive trends into mainstream industries. These include gamification, online casinos, real-time labor, and even cannabis.

Currently, Tom is CTO at MadHive, a data management company powered by blockchain technology.

Tom is also at the forefront of several Initial Coin Offerings (ICOs) within the blockchain Space, serving both in advisory roles as well as a principal orchestrator.

He is the Executive Producer of a new TV Series: The Rise of Blockchain.



## Vicki Cantrell

Retail Transformation Officer, Aptos, sparks & honey Advisory Board member

Vicki Cantrell is the Retail Transformation Officer at Aptos Inc, a community builder, and former Chief Operations Officer and Chief Information Officer in the retail industry. Most recently she served as NRF's Senior Vice President, Communities and Executive Director, Shop.org. There, she was responsible for providing strategic direction and management of Shop.org, NRF's digital retail division.

Prior to joining NRF, Vicki served as the COO and CIO of Tory Burch during a period of extreme growth and expansion domestically and internationally. Cantrell has also worked as CIO of Giorgio Armani Corporation and held positions of growing responsibility with Gucci Group, Party City and JCPenney.

Vicki is a respected industry leader, Retail (RIS) Hall of Fame honoree and an active member of the Retail Orphan Initiative as a Donor Trustee since 2010.



## Bing Chen

Digital Creator and Entrepreneur, Bing Studios, sparks & honey Advisory Board member

Bing Chen is a digital media pioneer and entrepreneur. He is the Founder of Bing Studios, a next-generation digital media studio and strategic consultancy joint venture with MediaLink, and Co-Founder and Chief Creative Officer of Victorious, a platform that powers premium subscriptions for the world's most passionate superfan communities—from digital stars to major film franchises. Previously, he was the driving force behind the digital creator and influencer ecosystem at YouTube as Global Head of Creator Development & Management, with more than 50 cross-functional business units engaging more than 500 million content creators.

Bing serves on the boards of the A3 Foundation, the Buffer Film Festival, Social Media Week, and STREAM TV. He is a World Economic Forum Global Shaper and has been recognized as one of Forbes' Top 30 Under 30 Leaders.

He is on the Board of Directors of Musely, and Board of Advisors of Baobab Studios, Packagd, Titan and ByteDance.

# CONTRIBUTING THOUGHT LEADERS

**Expert interviews conducted with nine contributing thought leaders, eight of whom are members of sparks & honey's Advisory Board.**



## **Dr. Laura Forlano**

Associate Professor of Design and Director of the Critical Futures Lab, Institute of Design at Illinois Institute of Technology, sparks & honey Advisory Board member

Dr. Forlano is an Associate Professor of Design at Illinois Institute of Technology, where she is Director of the Critical Futures Lab. A Fulbright and National Science Foundation-funded scholar, her research for the has focused on the intersection between emerging technologies and the future of cities in the US, Canada, Hungary, Germany, Spain, Australia and Japan.

A frequent speaker on topics related to smart cities, IOT, she is regularly featured in *The New York Times*, *New York Post*, *New York Press* and other media.

Her projects include the Driverless City to develop social scenarios, technical solutions, infrastructure prototypes, and model urban codes that transform city streets into 21st century human infrastructure. She serves on the board of NYCwireless and the New York City Computer Human Interaction Association and is advisor to the Institute for the Future.



## **Ping Fu**

Co-Founder, Geomagic, sparks & honey Advisory Board Member

Ping Fu advises corporations and governments on innovation strategy, mergers and acquisitions, leadership and culture, emerging technologies such as 3D sensing, imaging and printing; robotics, smart materials, interfaces and devices.

Ping co-founded Geomagic, a leading US software company which pioneers 3D technologies that fundamentally change the way products are designed and manufactured. Geomagic was acquired by 3D Systems (NYSE: DDD) in February 2013. As Chief Entrepreneur Officer at 3D Systems, Ping led the corporate growth strategy, new market development and innovation programs.

Awards for her leadership include "Entrepreneur of the Year" by *Inc.* magazine, Ernst & Young Entrepreneur of the Year (Carolinas), and Life Time Achievement award by *Business Leader* magazine.

She serves on several boards, including the Long Now Foundation, Live Nation Entertainment and Burning Man.



## **Dr. Fiona Kerr**

Industry Professor, Neural and Systems Complexity at University of Adelaide

Dr. Fiona Kerr is the Industry Professor in Neural and Systems Complexity at the University of Adelaide, working half-time across the faculties of the Professions and Health Sciences. She also consults to companies, industry and governments on building better brains and businesses, deploying artificial intelligence intelligently and understanding the neurophysiological impact of humans interfacing with both humans and technologies. She is a globally sought-out speaker and appears regularly in the media to delight people with accessible science.

# CONTRIBUTING THOUGHT LEADERS

**Expert interviews conducted with nine contributing thought leaders, eight of whom are members of sparks & honey's Advisory Board.**



## **Dr. Vivienne Ming**

CEO, Socos, Theoretical Neuroscientist, sparks & honey Advisory Board member

Named one of 10 Women to Watch in Tech in 2013 by *Inc. Magazine*, Dr. Vivienne Ming is a theoretical neuroscientist, technologist and entrepreneur. She co-founded Socos, where machine learning and cognitive neuroscience combine to maximize students' life outcomes.

Dr. Ming is a visiting scholar at UC Berkeley's Redwood Center for Theoretical Neuroscience, where she pursues her research in neuroprosthetics. She has developed a predictive model of diabetes to better manage the glucose levels of her diabetic son and systems to predict manic episodes in bipolar sufferers.

She sits on the boards of The Palm Center, EmoZIA, Engender, and Genderis Inc., and is a Chief Science Advisor to Cornerstone Capital, Platypus Institute, Shiftgig, and Bayes Impact. Dr. Ming also speaks frequently on issues of LGBT inclusion and gender in technology.



## **Geraldine Moriba**

Founder & CEO, Moriba Media, sparks & honey Board member

Geraldine Moriba is a journalist, filmmaker, content creator and multi-platform program developer serving clients such as WNET/PBS in NYC.

She is a 2018 recipient of a John S. Knight Journalism Fellowship at Stanford University.

Her recent film, "Until 20," a documentary about a young athlete living with cancer, won nine audience awards at 15 international film festivals.

Previously, Geraldine was executive producer with CNN's Original Program Development team and VP of Inclusion. She led CNN's "In America" documentary team, creating 11 award-winning documentaries that explored the American identity. Under her watch, CNN achieved its highest diverse audience levels ever, in 2016.

Geraldine was also at NBC News and MSNBC, and co-chair for NBC News' Diversity Council. Her multiple awards include five Emmy's, an Alfred I. DuPont Award and two Peabody Awards, among others.



## **Stefaan Verhulst**

Co-founder and Chief Research and Development Officer, Governance Laboratory at NYU (GovLab), sparks & honey Advisory Board member

Stefaan has been exploring the intersection of technology, innovation and governance for more than two decades. At NYU's Tandon School of Engineering Governance Laboratory (GovLab) he is building a foundation of experimentation and research on how to improve people's lives by transforming governance using advances in technology. His latest research considers how advances in technology and science can be harnessed to create effective and collaborative forms of governance.

Previously, Stefaan was Chief of Research for the Markle Foundation where he still serves as Senior Advisor. Much of the research he led was translated into legislation, executive orders and the creation of new organizations and businesses. Other current positions include: Fellow at The Center for Democracy & Technology; Senior Associate Fellow in the Programme in Comparative Media Law and Policy at Oxford University, which he co-founded.

# THE TEAM

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