# *The Future of Data*


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***Abstract:***

*The data revolution is here and will only be gaining momentum as technology advances, creativity grows, and our imaginations run wild. Rather than being reticent about the growth of data and its uncertain future, we can learn about it, harness it, and put it to good use.*

Data. For some it will conjure up images of facts and figures, people in a huge dimly lit and stuffy room bent over various mechanical devices crunching numbers. For others it will bring to mind statistics, studies of inane subjects that scientists in white lab coats have labored over for years, are exceptionally proud to announce their findings, yet seem to have no bearing on anything in the known universe. For a select few, this word is not a word at all, but a name. The proper name of a beloved character in the Star Trek Universe whose analytical approach to human interaction filled the void left by the indomitable Mr. Spock.

However, the idea of data has been viewed in the past, the rise of technology and tech-based companies has shifted our understanding and interaction with the subject. It is impossible to read the news or have a discussion regarding current events without coming face to face with data in some form or fashion. Data collection, data breaches, the rise of Big Data, how to keep our data private, what even constitutes public and private data are all topics that were unconscionable to the general populous as recently as 3 years ago. In a technology dependent and constantly connected culture we are unable to truly escape the reach of data, and if we are truly honest with ourselves, we wouldn't want to even if we could.

In recent years the idea of data has exploded into our societal conscience in a method and magnitude that few forecasted and that we are all still trying to comprehend. Data, that is, pieces of information about any given subject, is now viewed as a commodity like wheat, or gold, or rice. When viewed in that manner, data became the leading commodity in terms of value, trade volume, and both sales and profits in 2017, overtaking oil which had held the number one position for almost a century[1]. To say that Data is big business is a gross understatement.

Still, when most of us look at or think about data, it is viewed as an individual or consumer-based issue. We might consider how or if our privacy is being infringed upon or how and where companies are able to store all this information or even why it matters what I bought on Amazon, searched for on Google, or posted on Facebook. If we truly take a moment to consider the depth and breadth of data that is available, we may realize that the free services we enjoy every day are not actually free but are paid for by access to data. In fact Senators Mark Warner and Josh Hawley have proposed a bill in Congress that would require tech companies to disclose how much your data is actually worth to their businesses[2].

Even though most of the discussion regarding big data is around the individual or consumer, data is not just for consumers anymore…and actually it never was. Business-to-business commerce depends on data for much of its interactions without much recognition. This dependence has been growing steadily for years and will only grow stronger and more widespread. Before we can gaze into the crystal ball, or more accurately the retinal display, of the future, we need to understand where we are and how we got here.

I have been working in the data industry in one capacity or another for more than 15 years and have seen a massive shift in how business relates to data. When I started in the industry, very few companies relied on outside data to make business decisions. There were a multitude of reasons for this. The cost was high, the labor needed to make sense of the data was difficult for most organizations to handle, the technology couldn't make sense of the information, and there were a limited number of sources from which to gather data. As time went by all of this shifted.

First, more and more sources of data have become available. Organizations' data has become more accessible to the public, including financials, P&L statements, ownership breakdowns, and other bits of information that can give a picture of the company's health and stability. In the past, these documents had to be collected, organized, and uploaded into a central database manually and this database had to be stored on a server farm that was locally housed and maintained. While many companies were quick to realize that this information could help them make better decisions, the work that this data collection required made it costly and laborious.

In just a few decades, the amount of business data available has grown exponentially. Companies have made more information public, governments have placed more data into the public domain, and individuals have shown an often shocking willingness to organizations. The infantile data industry was flush with its lovely commodity, but as studies have shown, while more data makes us feel like we can make better decisions, often the reverse is true[3]. Enter the technological analysis: The wonderful hardware, software, programs, and code that allowed us to not only store millions of bits of data, but also analyze and make sense of it all.

Suddenly the data industry began to move at an ever-increasing rate. As more and more data became accessible, more and more technology was created to make use of the data. Companies began to figure out how to use this data and its accompanying analysis to tailor everything from coupons and offers to landing pages and banner ads, specifically for a particular consumer. This led to fear, government involvement, and landmark lawsuits[4]. While this slowed the business-driven data glut, it only fueled the social data fire that was exploding due to the growth of Facebook and Twitter.

Moving forward to the present we have become aware that many companies view us as data sets rather than people and that most of our lives are monitored, recorded, analyzed, and monetized. We are concerned that our privacy is being infringed upon, but not so much as to give up our Google searches, status updates, or the convenience of asking Alexa or Siri a question or to complete a task for us. We are both taken aback and thankful that our post on Instagram that said something about how poorly we slept and that we need a new mattress has led to banner ads for mattress sales and imbedded marketing efforts for direct to consumer mattress delivery. We know that data is valuable, but we agree to give up this precious commodity since it adds to the ease and convenience of our lives.

In business we agree to share data from company to company either because of convenience or by government mandate. We demand integration of systems that we use and are familiar to us with any new platform or software. We acknowledge in principle that this is an agreement to share our data with these companies, but it helps us streamline our systems and we hardly even notice the method by which the data is being sourced, aggregated, and analyzed. We expect report after report to be produced on a weekly, monthly, or quarterly basis, depending on the subject, that have greater depth and more insight than we could have imagined just 3 years ago. We make decisions based on guidelines that have been established, which are based on metrics that have been researched, which are based on data that has been collected from millions of sources. In short, business today does not know how to operate without data.

This necessity for data is only increasing. It is not enough to know where our shipment is at the beginning and end of each business day, no. It is not enough to know an approximate arrival time of that shipment. We now want to be able to track the truck carrying that shipment as it drives through the city and arrives at our loading dock so that we can have our people ready at the exact time it arrives and not a moment sooner. Our product will be produced to exact specifications, at an exact time, to an exact standard, all based on data. We are not comfortable doing business with another company based on a single meeting or phone call, but only after we have researched their financials, the LinkedIn profiles of their executives, their Yelp reviews, and viewed their headquarters via Zillow.

None of these items are inherently good or bad, they are simply the latest iteration of how business is interacting with data. But what about the future? What will data look like in the 1, 3, 5, or 10 years? To be frank, I don't truly know. That may seem odd to admit, being in the business of data, but I think it is the only way to approach the question. Three years ago, if you had asked 100 people in the data industry where data would be today, you would have received 100 different answers and most of them would have been far short of what is actually happening. There are so many ways that data is affecting our lives both personally and professionally it is hard to imagine where it will go next.

For the sake of argument, I will, however, venture a few guesses on areas that will feature prominently in the future of data.

- **Integration**: I know that I spoke about integration being a necessity in present time, but I think that this will only increase in the future. If technologies are not able to be integrated among one another through API, dedicated apps, or some other form of technology, they will cease to be relevant. The level to which integration can go is far from certain, and as we move forward at a blistering pace we will learn more and more ways to integrate our systems. In my own organization we are exploring more and more ways to have our API work with more platforms and integrate in more ways within those platforms so that our

data can be used in more and more applications for more and more businesses to help them make smarter business decisions.

- **Automation**: As integration increases automation will increase at an even greater level. This may take the form of a system like this in credit management. A request for credit is received from a new company. The request portal is integrated with the credit risk software, which is integrated with the credit data platform. The request is rushed through these integrations in real time, analyzed, compared to a set of preconceived guidelines (created with data from previous accounts), and immediately given a result. It might be rejected, sent for further consideration, or confirmed. If rejected a form would be received by the applying company with an explanation and an automatically generated guide to help them improve their financial standing with an offer from a business credit company to assist them in growing their business credit and increasing their score. Similar things could be done for companies that are sent for further consideration or accepted. All of this would happen in real time without any human effort. The more we consider this and see the applications of automation when paired with data, the more ways we find to automate the world around us.

- **Augmented Reality**: Many of us came to learn about the idea of Augmented Reality through the app Pokemon Go. The game, that became a phenomenon, introduced the masses to the idea of seeing something through a screen that looked like it was there, but only existed in a virtual space. Whatever you think of the game, the applications for business are incredible. Imagine, if you will, an app that allows your sales team to see what companies are located in a particular building, what their overall rating is, who the owner is, who their main partners, distributors, and suppliers are, what their business credit score and limit is, as well as the latest social media updates and press headlines for the past month. This type of technology would certainly change the way you do business and it is all reliant on data.

While there is no way to know for sure just where the future of data will take us, there are 3 steps to prepare your organization for wherever the path may lead:

1. Make an honest assessment of where you are. If your business does not understand how to use data, if your systems and technology are too out of date to take advantage of the data available, or if you have insulated yourself from any need for data, be honest about where you are. You cannot prepare for the future and the many changes to come without knowing your current position.

2. Put systems in place that take advantage of the current state of data. Update your systems to the latest versions and integrate your various software and hardware so that things are more efficient and effective. Get comfortable working with data, integrating it into all areas of your operations, and take advantage of automation whenever possible. These steps may be difficult and costly in the short term, but the savings in time, money, and labor will more than make up for it in the long term.

3. Be knowledgeable and flexible. Business professionals today cannot turn away and expect that the explosive use of data will subside if they simply don't acknowledge it. Data as a commodity and business practice is here to stay and you have to become at least conversational in its language. Additionally, you have to remain flexible as this relatively young industry goes through growing pains with many starts and stops, bumps and bruises, successes and failures. You don't have to be a pioneer in how to use data in your industry, but you definitely don't want to be one of the final adopters of the integrations and automations that are inevitable in business.

The data revolution is here and will only be gaining momentum as technology advances, creativity grows, and our imaginations run wild. Rather than being reticent about the growth of data and its uncertain future, we can learn about it, harness it, and put it to good use. Remember, 150 years ago, electricity was a terrifying technology that was too violent and dangerous to be of much use and yet today we would not know what to do without it. The growth, integration, and automation of data will not take nearly 150 years to be critical to our personal and professional lives, and just like electricity, we may not know the length or height or depth to which this young commodity can go, but be assured that it will continue to shape and mold our businesses and lives in ways that will help us to do what we do best to an extent we never could have dreamed only 5 years ago.


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