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Dealing with Data Disruption

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Disruption is the single greatest threat to operations. And at the heart of disruption is change. An organization's ability to manage and adapt to change can be directly correlated to its ability to succeed or fail. While change is constant, both the pace and impact of change have increased dramatically in recent years, and it's predicted to go beyond what is humanly possible to manage. The bottom line is that organizations need help if they are going to be able to thrive.

Change resistance can spell disaster for an organization. Just ask Betamax, Blockbuster, MySpace, any brick-and-mortar retailer, or the taxi industry. Even within our own industry, different types of organizations have differing change proclivities. A small-to-medium or start-up business may be more inclined—and able—to change more rapidly. In fact, many new businesses—such as Amazon, Google, or Uber—were founded upon a premise of disruption. On the other hand, a telecom service provider may have been born as a public, government-regulated utility, possessing millions of dollars' worth of legacy systems and assets—and the original implementers are long gone or resting in peace.

Pipeline isn't a financial publication, but surviving disruption has become more than just paying lip services to change or adaptation. It has become fundamental to how a company is valued in the open market. As I write this article, Amazon, for example, publicly trades at over 126 times its price-per-earnings ratio (P/E). Alphabet (formerly Google) is trading at over 45 times P/E and broke 1 trillion dollars in market capitalization earlier this year. By comparison, AT&T, Comcast, Telus, Verizon and Vodafone—some of the world's most advanced service providers—only trade between 5 and 20 times P/E. To perhaps put that contrast in better perspective, one share of Amazon stock would cost you $1,593.41 today, when the company generated nearly $180 billion in revenue last year. Compare that to AT&T, which earned roughly the same amount in revenue ($160 billion) last year, which you can pick up for just $30.29 per share. Simply put, if AT&T had the same valuation at Amazon, AT&T's stock would be valued at over $1,000 per share—and that's significant.

But transforming into a digital disruptor is a daunting task. It requires a unique balance of technology, automation and innovation. Those three elements are fundamental to transformation and must be infused throughout an organization's systems, operations, and culture. We can and do spend a lot of time on each of those areas at *Pipeline*; but for the purposes of this article, let's look at one example: Uber.

Uber set out to disrupt the taxi industry with innovative mobile technology. It capitalized upon the proliferation of 4G wireless technology and smartphones. Uber simply doesn't exist without either. It then addressed fundamental manual processes that impacted the legacy customer experience, such as billing and car location. Traditionally, if you called a taxi cab, you would have to talk to a dispatcher, who would have to radio a cab driver, and then you might have to call back to find out where your car was. Then, when it arrived, you would have to figure out if the driver accepted credit cards, or you would perhaps even stop at a ATM to get cash if not. This process was a real pain, particularly when traveling internationally. With Uber, you can request a car, see where it is, and handle billing automatically through the platform. This enablement means low overhead for Uber due to the sophisticated data management and back-end automation that is in place. Uber knows who I am, where I am, what I need, and how to bill me for services—automatically. No phone calls, no dispatchers, no radios, no in-car credit card machines or cash handling. The very intent to disrupt the industry by leveraging the latest technology was cultural and a fundamental founding

principal of Uber, the culmination of which *is* innovation.

So, it begs the question, what does it take for a large enterprise or service provider organization to become a disruptor? It takes a transformative and disruptive mission, advanced technology, automation, and innovation.

The Disruption Equation

The advent of new technologies—such as network virtualization, 5G, and the Internet of Things (IoT)—stands to transform almost every industry. Many of these use cases have yet to be defined. But we already know the opportunity is enormous, with billions of connected devices; virtual devices, functions and services; and the immense wireless and wireline connectivity required to support them. If these new technologies are leveraged with the intent to disrupt the underlying industries, the result will be compelling innovation. This is the opportunity that presents itself now to enterprises and service providers.

But, going back to two earlier points, the sheer scale is going to require massive automation—and humans can no longer keep up. Even if humans could keep up, manual processes are costly, requiring a greater investment in both people and equipment. They are prone to error, creating a greater frequency of faults. Manual processes also create a poor customer experience by taking more time and generating multiple unwelcome interactions. I'll even go out on a limb here and say that people are not innovation, and you cannot innovate with people alone. The value of the human element (and role) within a disruptive environment is distilled down to purely the combination of the culture they create and expertise they possess. Perhaps it boils down to how focused they are on innovation versus operations.

Harnessing the latest technology is a large part of the equation, but another key component is the back-end technology that can be used to automate and provide a better customer experience, while also allowing the human element to shine. Integral to both parts is data. Data is at the heart of innovation, disruption, and transformation. Data is derived from the new technology—such as new networks, devices and systems—and leveraged by back-end systems which can automate the processes for efficiencies while leveraging the data in new ways to create innovative new offerings based on contextual information.

It's this unique balance of new front-end technologies (such as networks, devices and systems), rich data sets, back-end technologies (such as automation, machine learning, and artificial intelligence), and human innovation based on a culture of disruption that opens the door to enormous opportunities and transforms companies into true disruptors. And it's here where many of the aforementioned companies are failing. They possess an abundance of human resources, network technologies, systems, features, functions, and even content, but they are failing to establish a disruptive mission and a pervasive culture of innovation, and they lack the automation to make growth possible and sustainable.

AI, Machine Learning, and the Automation Imperative

Companies in the earlier examples, such as Uber, would not have succeeded if they allowed manual processes to permeate their customers' experience or back-end operational process. Uber quickly loses its luster if you still have to call a dispatcher or pay in car. Profitability and scalability also quickly erode if Uber had to manage dispatch staff or provide radios or credit card terminals to their drivers. The same concept applies to new innovations. To be truly disruptive, manual process must be removed from both the customer experience and back-end operational processes. The role of the system then transforms into one that focuses on removing operational issues from the human role and presenting more relevant data to the human; and the human role becomes one of making better decisions faster based on better information and a mission to innovate.

Recently, I had the opportunity to interview Rhett Williams, president of EMEA for gen-E technologies, on the topic of automation and the application of machine learning and artificial intelligence (AI) to today's operating environment.

"The most brilliant mind untethered from contextual knowledge is just a really smart idiot," says Williams. "You have to have both in order to harness technology and unlock the value of innovation."

But to do that, we must define the difference between machine learning and AI, and how each can be applied. gen-E defines machine learning as a method to distill human knowledge (for example, how to handle a fault) to create algorithms that can take similar action based on similar circumstances, in order to allow the human role to focus on other things such as innovation. AI, on the other hand, can ingest data and make both autonomous decisions and recommendations for innovation based on an understanding of the information in context. In product terms, gen-E's OpCenter collects data which then can be analyzed using machine learning in OpCenter Analyze; or the data can be compressed and moved using OpCenter Transport to OpCenter Decide, which is a cloud-based AI for decisioning and recommendations. This approach enables gen-E's customers to focus on new innovations, whether identified by a human worker, or AI.

"You don't want to put a plow on a race horse," adds Williams. "Machine learning can be applied for many traditional use cases, while AI can be used where there is a need for more complex, contextual and even super human comprehension."

William goes on to explain that resource utilization is the key differentiator for those enterprises that succeed. And resource utilization can encompass devices, network elements, people, or cash.

"There are very few, if any, people who can hold hundreds of thousands of network elements and all the various performance parameters, workflows and data paths around them in their minds, while keeping up-to-date with the changes that are taking place in real-time," Williams states. "By leveraging AI, we are able create a holistic view and understanding of the totality of our customers' resources and their performance. Then we can optimize the entire network."

Understanding the Past, Surviving the Present, and Thriving into the Future

We've been talking about AI since the 1950s. But the reality today is that AI has become a viable technology when applied appropriately, and the use cases are growing beyond the simple chatbot. Companies like gen-E are leveraging AI, machine learning, and automation in new ways to enable human workers to focus on what they do best: create. And AI can do a lot: it can understand, translate, recognize and compute. You can tell an AI to find something beautiful and it can; but you can't tell it to create something beautiful and it will. For the time being, that remains up to us.