

Customer Revolution Driving Move From Digital to Cognitive Enterprise

By Rick Davidson



Customers Today Have
Very High Expectations

The “impatient narcissist” is probably an apt description for today’s consumer. They want what they want and they want it now. They have extremely high expectations regarding every aspect of their “journey” with an enterprise’s products or services. From gathering information to purchasing a product or service, using it or recommending it to their friends, they have no patience for dysfunctional technology or business processes that get in the way of a great customer experience. And, they expect companies to treat them as individuals, knowing their preferences and needs, and offering them products or services that are relevant, timely and simple.

Fortunately, in an odd way, data creates the means to identify and meet the needs of today’s consumer. We are at the beginning of a customer revolution, fueled by data and the insights it can provide. But, it hasn’t always been that way.

Data - Fuel for The Revolution

For those of us over 40, we remember when data was captured with pen and paper. Statistical analysis was done using calculators and, later, with desktop tools like Microsoft Excel. Information

on customer likes and dislikes was captured using “analog” means – in-person focus groups, surveys sent through postal mail and phone interviews. This information was then extrapolated and used to describe customers as broad, nearly homogeneous groups of consumers.

In the 1990’s and 2000’s, computers became more ubiquitous while at the same time, storage and processing capabilities benefited from the phenomenon know as Moore’s law. This facilitated the “digitization” of data, as more and more consumer interactions occurred using digital channels, like the internet and mobile devices. As a result, it became possible to track individual consumer activities as they left digital trails or “ponds” of data through their e-commerce transactions and social media behaviors.

Today, many corporations are floating in an “ocean” of data about their customers, but uncertain about what to do with it. It reminds me of the Rime of the Ancient Mariner, “water, water everywhere, nor any drop to drink.” We generate as much data in one day as our 15th century ancestors generated in a lifetime. By 2020, the world will collectively store 40 zettabytes of data. That’s a 10 with 21 zeroes next to it – 10 times more than the grains of sand on all of the beaches in the world. This volume of data about each of us means that we are essentially becoming human sensors in the planet’s nervous system.

As a result, governments, enterprises and individuals are determining the best way to use this data to improve the human condition (at least we hope so). For enterprises, learning how to capture value from this data will be one of the key distinguishing characteristics of successful companies over the next decade. And, the analysis of this data goes beyond just a cursory review of explicit and implicit customer preferences that then inform the development of marketing campaigns. It involves predicting customer behaviors and needs and then creating products and services that uniquely satisfy these needs.

Successfully developing and reacting to insights from data will enable companies to move from the digital to the cognitive enterprise. But, what defines a digital and a cognitive enterprise and why is it important to move from a digital to a cognitive enterprise?

From Analog to Digital to Cognitive Computing - Reacting to the Revolution



There are several examples that come to mind when explaining the journey from the analog to the digital to cognitive computing. Some of the best examples are in the media and entertainment

business as this industry has seen a transformation take place over just a couple of decades.

Analog. It wasn't that long ago that A.C. Nielsen sent paper diaries to household TV viewers, asking them to record their weekly viewing activities. Individuals and families would then send this information back to Nielsen via the US Postal Service. This is a great example of the analog enterprise – written data, provided well after the fact and from a relatively small sample size of viewers.

Digital. As the media industry moved from broadcast technology (remember TV antennae?) to digital content and digital delivery channels (cable, internet, mobile), it provided consumers with the ability to watch just about any program, anytime and anywhere. Media companies benefit from this on-demand access to content, as it gives them instant access to viewing information. They then use this data to set the price for commercial time that advertisers purchase.

Cognitive. Media companies are now using consumer data, both in the aggregate and to develop multiple profiles or personas on viewers, to determine and “push” the content that most suits the interests of its viewers across demographic, ethnographic and geographic backgrounds. This increases both consumer loyalty to particular media distribution channels and a stronger probability that advertisers will reach the targeted audience they seek.

The Cognitive Enterprise - A Definition

The key distinction between the cognitive enterprise and the other two – analog and digital – is in the extensive use of data by cognitive enterprises. This data comes from diverse and varied sources. Companies often have a great deal of data stored in their CRM, ERP and customer service systems. Data can also be purchased from third-party aggregators, like Acxiom and ChoicePoint, to gather additional insights into customer behavior. A new source of data, generated from smart and connected devices (aka, the internet of things) is a relatively new source of data, but one that has the potential to create even greater insights into customer behaviors and needs.

Think of data as the foundation for a customer “sensory” system. Lacking the ability to sense customer activities leaves companies without an opportunity to truly understand its customers. The ability to capture, store and analyze this information provides the “cognitive” system to learn about and then predict customer behaviors. Most of us are creatures of habit. Consciously or subconsciously, our behaviors follow predictable patterns. Computers can learn these patterns and then anticipate our actions. Scary stuff, but nonetheless true.

Successful companies will use these insights to inform, guide, assist and encourage us. All with the intent, ideally, to improve the human condition – in other words, enriching our lives. As an example, I can imagine a day when I have my own virtual concierge that learns my living patterns and preferences and then takes over all of the “administrivia” in my life, allowing me to focus on the things most important to me. This is not science fiction. The Amazon Echo, Apple Siri and Microsoft Cortana are first generations examples of virtual concierges.

The cognitive enterprise is not limited to the media industry, but has applicability across many industries. Government is also not immune to the impact of data and cognitive computing as a means to improve the products and services they provide to the communities, states and nations they

serve. The table below contrasts the analog enterprise relative to the digital and cognitive enterprises across several industries.

Industry Examples		
	ANALOG	DIGITAL COGNITIVE
INSURANCE: (Underwriting)	Actuarial tables based on general population data	Individualized risk profiles based on behavioral patterns
PHARMA: (Drug Therapies)	Generic medicines based on most common pathologies	Customized biologics based on an individual's own DNA
HEALTHCARE: (Disease Detection)	Periodic health examinations to identify anomalies	Real-time blood chemistry monitoring for early discovery of anomalies
TRANSPORTATION: (Vehicle Ownership)	We each own a vehicle with utilization < 10% during any given day	We purchase transportation on-demand, utilizing autonomous vehicles
EDUCATION: (Teaching)	Knowledge transfer is generic, occurs in-person in a physical classroom	Knowledge transfer is individualized, online and with a virtual instructor
GOVERNMENT: (Policing)	Investigate crimes after they occur using traditional forensic methods	Anticipate and prevent criminal activity (e.g., "Minority Report")
GOVERNMENT: (Voting)	Annual, biennial, quadrennial voting to elect representatives	Online, voting on-demand to capture citizen sentiment – true democracy
MANUFACTURING: (Smart Products)	"Fire-and-forget" products with static features / functions once manufactured	"Learning" products that are software-enabled and contextual

Next Steps for Technology Leaders

Many technology leaders are already versing themselves in the emerging platforms and tools that enable the cognitive enterprise. IBM's Watson is probably one of the better known platforms in the marketplace today, providing access to machine learning and artificial intelligence capabilities for several industries. However, just understanding the platforms, technologies and tools is not enough.

Forward thinking technology leaders will also come to realize that developing expertise across several pillars of knowledge is also required. These pillars include what has been affectionately called STEM (science, technology engineering and math). But given the corpus of knowledge required to develop cognitive solutions for the customers or citizens they support, technology leaders will also need to immerse themselves in the two "Es" – economics and ethics.

Economics ensures that cognitive computing ideas are financially viable and sustainable. Engineering ensures that these ideas are practical and implementable. And, ethics insures that the prime motivator for cognitive computing is to improve the human condition. So, let the learning and experimentation begin.

About Cimphoni

Cimphoni is built on the premise that technology, when properly applied and led, can deliver innovative solutions that transform businesses, enrich the products we use daily and improve the quality of our lives. The Cimphoni team is comprised of technology and business leaders, physicians and medical researchers with a thirst for innovation and a passion for solving problems. Cimphoni Consulting is focused on business transformation using information technology to enable new product and service offerings and improve business performance.

Cimphoni Solutions develops Internet of Things strategy, devices and data analytics, as well as custom enterprise software. Cimphoni Life Sciences creates new medical devices and solutions that address acute and chronic illnesses and improve the health of individuals.

Founded in 2012, Cimphoni is headquartered in suburban Milwaukee and has an office in Phoenix to serve customers throughout the United States. More information can be found at www.cimphoni.com.

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