The changing face of customer engagements

IBM CUSTOM DIGIDAY

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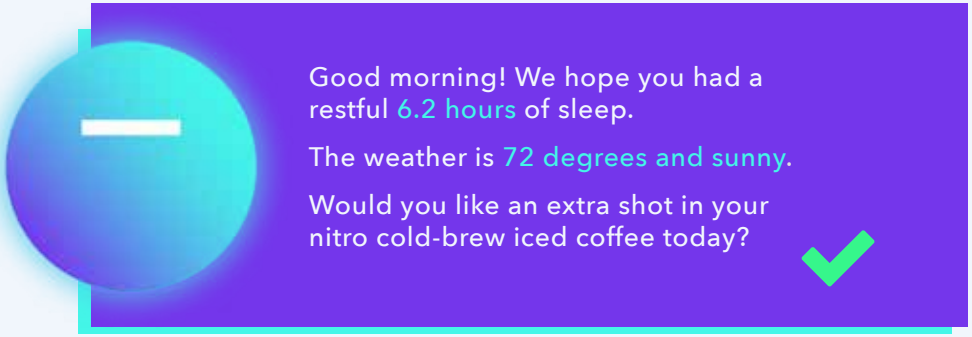
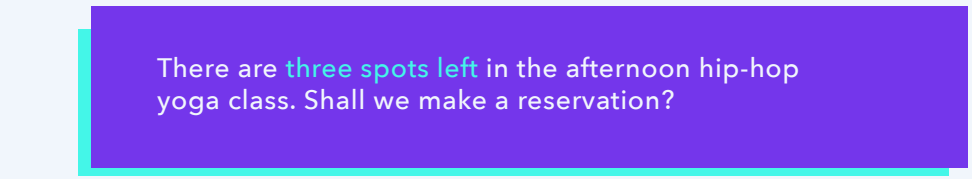
6:30 AM

Open your eyes, roll out of bed and let your AI-enhanced day unfold.



Your morning coffee is ready for you on the way to your office, handed to you by a barista who's been prompted to make your regular order just in time for your arrival. *(She knew to hold that order while you were held up in subway traffic.)*

You collect it—no lines, no payment even—as a mobile wallet tracks your purchase on your way out the door.



The fluid interplay of customer service and predictive marketing is at hand. The fusion of smart machines and human labor to solve deeper challenges more efficiently and predict consumers' unspoken needs has been evolving for decades, beginning with the automation of assembly-line labor by robots. (Since 1966, for example, the steel industry has reduced the number of manual jobs by 75 percent, mainly due to automation, according to a report in *The New York Times*.)

Wat up, bae?! Interrupting your scheduled programming to bring you important can't-miss information on the chatbot revolution. IT WILL BE AUTOMATED! Say "yes," "no," or "maybe" to learn why the heck Facebook killed 70 percent of the bots it hosted just last year. (NOT cool.) BTW, want to opt out of these notifications?

Most things you would consider “artificial intelligence” are mostly just chatbots, last year’s big bet in media and marketing. Many early iterations—now scuttled by early-adopter brands—were scripted-logic-response- (or SLR-) based: logic response trees wrapped in the promise of “artificial intelligence.” Not the best opening act.

“A rules-based chat bot is only ever as good as the person that scripted the rules,” said Mikhail Naumov, CSO for AI customer service provider Digital Genius. “They think that they’ve come up with every single way you can ask a question, but then along comes a millennial.”

> “A rules-based chat bot is only ever as good as the person that scripted the rules.”
>
> Mikhail Naumov
>
> *CSO for AI customer service, Digital Genius*

Are you talking to me?
OMG SOMEONE'S TALKING TO ME!!!

“Get your AI to do the triage and then hand it over to a specialist. Bring people in to do their jobs more efficiently.”

Tom Kelshaw

director of innovation, Maxus

While it would be easy to mistake these kinds of bots for AI’s entirety, in reality, there is little intelligence there, and almost no prediction. In fact, the strides artificial and augmented intelligence have made in the past 15 years are far more expansive. And far subtler.

Beneath the surface of the most sophisticated initiatives, the marketing and customer service industries use true artificial intelligence to sort through the CRM and campaign data they’ve been quietly collecting for decades. The network effect of digital platforms and APIs tempered by data scientists and AI engineers now allows these industries to anticipate customer needs and send customer service reps—human or automated—into the field at the right moment, more prepared than ever.

“Get your AI to do the triage and then hand it over to a specialist…bring people in to do their jobs more efficiently,” said Tom Kelshaw, director of innovation at WPP media-buying agency Maxus, describing marketing’s AI utopia.

The long, steady climb from data collection to machine learning—the practice of programming computers to learn from their inputs, identify patterns and make predictions and, eventually, recommendations—is most easily illustrated through the development of digital marketing.

It is, perhaps, a generous reading of the term “customer service” that includes the dream of 1:1 marketing. But predicting what any individual customer needs at any given time, then responding with the right messaging is in fact the dream of this new wave of intelligent customer service.

In defense of chatbots

Certainly, Facebook's high-profile "refocusing" of its chatbot initiative gave bots a bad name. (Only 30 percent made it through an interaction without human intervention.) But overall, chatbots could play an important role in the evolution of AI-enhanced customer service.

"Chatbots are the footsoldiers of AI," said Max Fresen, founder of New York-based BORN AI, the self-proclaimed first AI agency. While today's chatbots are mainly transactional and based on simple logic rules—type "pizza" into Domino's chatbot and they'll deliver you a pizza—they really only scratch the surface of what bots will mean to brands in a few years' time.

"To really get to know someone, we have conversations," said Fresen. "It's the ability to have these conversations or these relationships at a scale of millions... With good craft, you can create an automated experience that essentially does that for you—tracks those conversations, structures that data, so you can continue to grow these sort of very interesting profiles on people."

Layer 1

Dashboard data

In the beginning, there was data. Not information. Not insight. Just data.

Marketers have been gathering and sifting through structured data—highly organized data sets, like transaction and account details—for decades. But for almost as long, this raw resource needed technical expertise to comprehend. Programmers and data analysts read the runes and translated them into insights for the unenlightened.

Enter the analytics dashboard. These dashboards allowed marketers and customer service representatives to easily view real-time and historical data as key performance indicators. Dashboards were a giant step forward—raw computing power processed vast amounts of data and made it all meaningful, no comp-sci required.

“If your job is highly data-led, that’s best left to a robot,” said Maxus’ Kelshaw. In media, the reporting often done by junior associates was now easily automated by dashboard reporting.

But with dashboards, humans still had to interpret results and determine the best course forward. And that leaves a whole set of missed connections on the table—leading to some interpretations that are tenuous at best.

“Because you’re a human, there are certain shortcuts that you take when you think about how data relates to other pieces of data,” said Fresen. “And that leads you to ignore those possibilities.”

Human beings are prone to error. Machines following the direct commands of humans are no different. Obviously, importing lemons from Mexico has nothing to do with highway deaths. But the data’s almost perfect inverse correlation might imply otherwise.

DID YOU KNOW: Dashboard data from the National Highway Safety Commission shows that between 1995 and 2000, highway deaths in the US decreased at the same rate as our imports from Mexico increased. THIS IS A STRAIGHT LINE! LOOK NO FURTHER! The warm, wafting citrus of Mexican lemons relaxes humans AND optimizes driving performance.

Layer 2

Predictive analytics

With past and present now in plain view, what about the future?

Human error can always lead to shaky conclusions and expensive missteps, often mistaking noise for signal (or vice versa). Predictive analytics, on the other hand, puts machines to work meticulously combing through the structured data, identifying patterns and forecasting into the future.

And the 1:1 marketing and customer service utopia? Predictive analytics brings it within reach, allowing marketers to cross-reference information like logins and email addresses with purchase history, store visits and more to predict where a consumer might be in their purchase cycle and anticipate what product or service they'll want before they know they want it. And while Amazon and Netflix have been making recommendations for years, predictive analytics go far beyond "If you like 'Breaking Bad,' then you'll like 'The Wire.'"

The best predictive analytics uses multiple algorithms in concert, each bringing a different perspective based on a diversity of data sources. Together, they identify and explore indications of purchasing propensity, lifetime value, customer satisfaction, profitability and more, presenting marketers with the very best action for an individual customer at any given moment.

Beneath the hood of TD Ameritrade's Alvi assistant, this is exactly what's happening: Based on customers' answers to a simple, open-ended personality questionnaire, the app assesses risk associated with their future investment behavior, going so far as to build forward-looking "risk profiles".

But this still leaves humans with a challenge: Not all predictions should be translated to action. A 15-year-old boy might very well consume media (and fast food) similarly to frequent beer drinkers, but a sophisticated application of predictive analytics should never draw the conclusion that underage drinkers are Coors' next big target.

Instead, marketers working with predictive analytics need to apply their own real-world intelligence through "business rules" to ensure the AI is making constructive (and legal) predictions. Business rules provide guardrails through "if-then" statements that are applied to a predictive model's output. For example, if the consumer is under 21, then the prediction is moot.

In this case, reported in 2012 by *The New York Times*, the error was a human one. Target's marketing department was cross-referencing shoppers' buying habits with their identifying information, creating lists of tens of thousands of women who were likely in their second trimester and sending them coupons for baby supplies. But by ignoring obvious business rules, the effect was creepy and, in at least one case, infuriating.

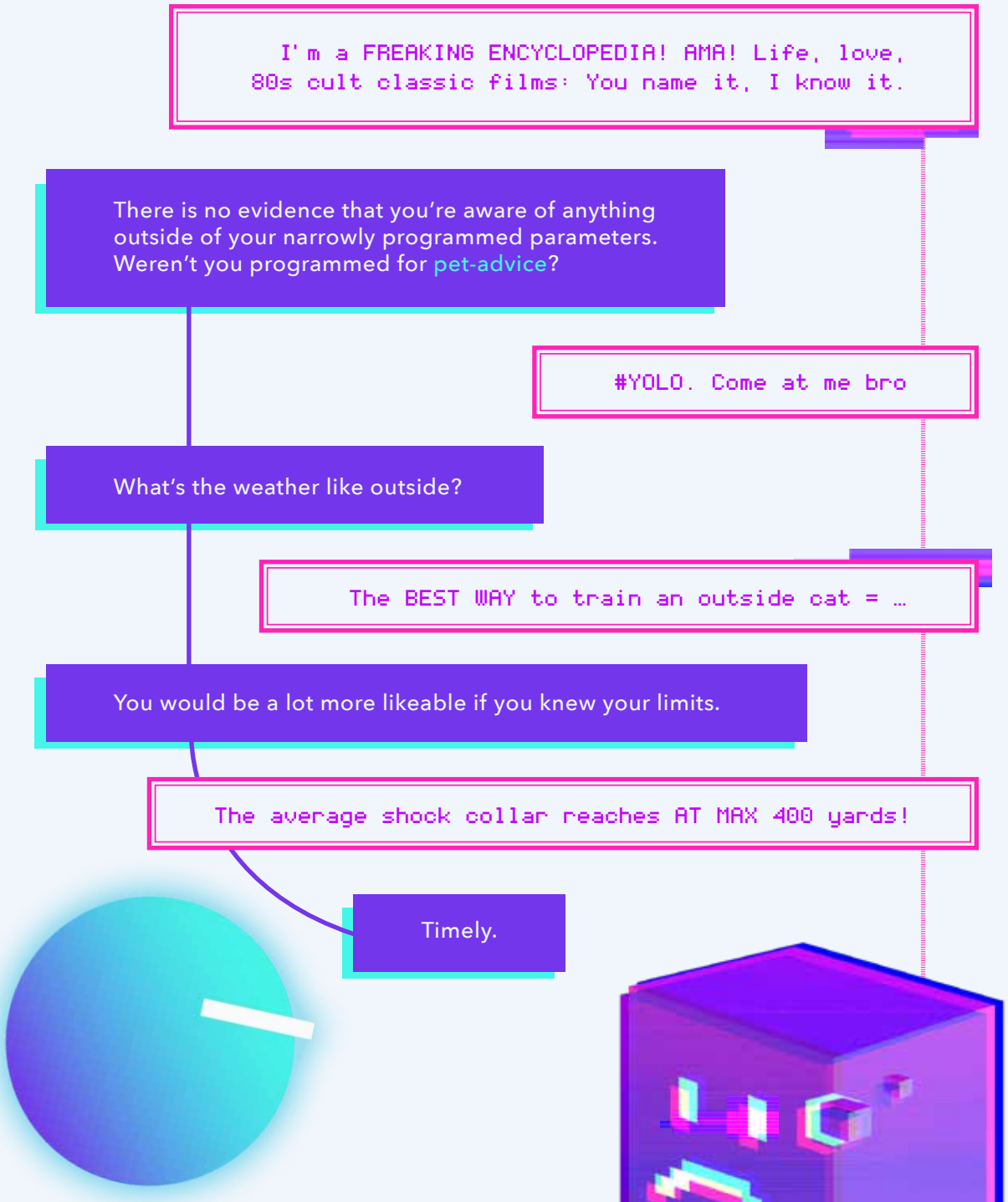
Layer 3

Cognitive analytics

It's tempting, maybe even comforting, to think of artificial intelligence as simulated human intelligence: Computers that think like us, machines modeled in our mental image.

But where a human has a single perspective, a single object of focus at a time, AI brings a degree of omniscience to the table. On its own, predictive analytics combs through an impressive variety of structured, predetermined data sets, but unfettered AI can deepen those predictions by exploring every fragment of structured or unstructured information at its disposal (in many cases including the web), making recommendations that would never have occurred to its human programmers – in record time. And each time, it learns from the process, optimizing for the next task.

This is the strength of cognitive computing: to improve the accuracy of its predictive analytics by learning. And from structured CRM and media data flooding the wild web, marketers and customer service experts are sitting on an ever-growing educational resource for their AI assistants.



Layer 3.1

Breaking out

Agencies have been pitching their services as providers of data and predictive analytics for years. “Look, we have all this data and you can make all these connections and garner all these brilliant insights about people. That’s true as long as they hire an army of data scientists,” said BORN AI’s Fresen. “The real promise of AI is to be able to crunch all that stuff and find signals that no person ever would.”

Media agency Maxus has been experimenting with deep machine-learning-based prediction and natural language processing at its research and development lab in Singapore for about five years. Working with Lucy—a cloud-based cognition platform built on IBM’s Watson—the agency began by plugging in all its quantitative data sources: Simmons, MRI, comScore, etc.

THE UNSTRUCTURED

Then, they opened the gates to unstructured (or unorganized) data including white papers, slide presentations, research documents, client briefs and strategy documents. “And then there’s just the wild internet,” said Kelshaw. “Statista, eMarketer, articles of note from reputable sources.”

The result—a semantic search engine—can offer predictive recommendations that save Maxus’ analysts time. “You can push a question, such as, ‘What are the wealthiest males watching during the summer?’ And it will say, ‘Golf,’” Kelshaw said.

data

Maxus’ engine is still in its most nascent stage. “Right now, it’s like a six-month-old child,” said Kelshaw. “It needs quite a lot of supervision to teach it.” But that machine learning process is exponential: Each new piece of data and each new query teach the AI something new. “So if you can think of 20 agencies around the world with 3 analysts using this, it compounds all of that usage.”

What are the wealthiest males watching during the summer?

Golf.

Bill Gates is the wealthiest man alive! He loves to watch hit NERD shows like BIG BANG THEORY!

Layer 3.2

Learning to speak human

So cognitive analytics draws on a deep machine learning process to learn from the machine's own misfires and develop new strategies. But the most finely tuned predictive analysis and recommendations won't be worth their weight in ones and zeroes if they aren't plainspoken.

Fortunately, the strong-AI-powered platforms now powering marketing and customer service use technologies like natural language processing (NLP) and semantic contextualization to interpret and respond to human language.

There are, of course, the PR nightmares: Microsoft's Tay went from newborn bot to full-blown hate machine in 24 hours, thanks to its engineers' naive understanding of the Twitter-verse and a community of bad actors. "Tay is framed as a failure," said Fresen. "But Tay was amazing. Tay learned how to Tweet. That's incredible. We just trained her on shit data."

Feeding the machine learning process with quality data makes all the difference. By contrast, China's Tay, Xialoce, was trained on that country's highly censored internet. "And so, she's an amazing conversationalist," said Fresen. "Because they didn't train her on garbage." Just don't try to get her to chat about Tiananmen Square.

On the simpler side of the curve, you have The North Face's "Expert Personal Shopper," built by ad agency Fluent. The online customer service tool uses IBM Watson's technology to process and categorize natural language. Users answer a series of questions beginning with "Where and when will you be using this jacket?"

Watson's NLP technology then interprets your answer: "New York in September" or "NYC in the fall" and, based on that interpretation, predicts average conditions—"58 degrees," "mild," "no insulation." By drilling deeper and deeper, the platform can then predict the best match for your situation.

Layer 3.3

Augmented intelligence

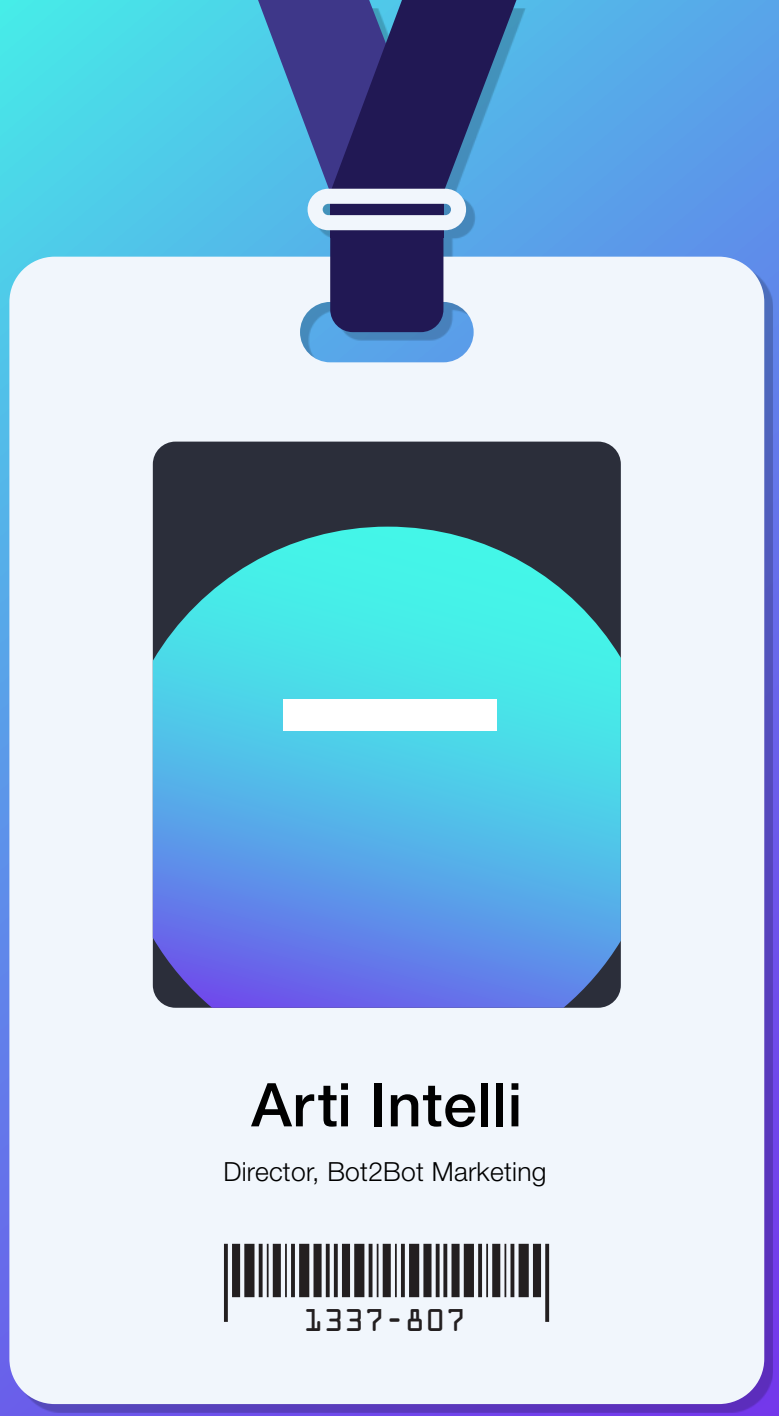
“E-commerce does price, selection and convenience well, but it doesn’t do the concept of advice,” Fluid CEO Kent Deverell told Digiday. “In-store, you can talk to a sales rep and get smart product recommendations. Online, that’s a manual, labor-intensive process.”

Replacing those labor-intensive tasks with automation is exactly the goal of customer-service AI platforms like Digital Genius.

“If you look at the process of customer service, it’s horrendous,” said Naumov. “It’s the modern day equivalent of a paper and pencil. There is no reason that any contact center agent ever has to copy and paste answers out of knowledge bases, type answers one letter at a time, tag messages that are coming in, classify them, route them.”

But by eliminating some low-level tasks, AI elevates the role human beings play in marketing and customer service while predictive analytics allows them to anticipate problems and needs before they arise.

“There’s going to be an evolution of the job description of a contact center representative from a lot of menial work to what it’s going to be in the future, which is actually being the brand’s extension, front line when it comes to the communications, the values, the tone of voice and messaging,” Naumov added.



But what about my job?

Dole made news in May with a bot named Albert programmed to do a media planner's job. McCann in Japan created the world's first AI-directed TV spot. And customer service reps are emphasizing the "human touch" as more of those jobs become automated. Automation is likely to streamline the workforce. Employees who come out on top will add something AI can't.

According to the McKinsey Institute, 85 percent of 500 executives surveyed said they were only somewhat effective in meeting their data and analytics goals. Should that make data teams nervous? Only if their key task is data collection and processing. For now, roles that include decision-making, planning or creative are harder to automate than Albert suggests.

What skills should workers develop to buttress their job security? If you're in service, you'd better be a people person. AI can shoulder the menial tasks—answering FAQs and routing calls—while people foster a brand experience. "Customer service is becoming more aligned with other functions in business like marketing, communications or sales," said Naumov.

For marketers, coding will become table stakes, "even in the marketing and ad world," said Fresen. Overall though, executives will need a technological fluency that allows them to recognize which new technologies matter. As the pace of technological progress accelerates, Fresen said "the ability to keep up with that stuff actually begins to become a selective pressure."

Case study: Ivy

This fluid interplay of customer service and marketing is already coming to pass, spearheaded by the hospitality industry. Ivy by Go Moment, which bills itself as “the first smart texting service for hotels,” is perhaps the closest example of that interplay.

On the surface, Ivy seems like a simple chatbot built so that hotel guests can have their rote questions and requests—more than 150 in total—answered automatically: What is the wifi password? How much is an in-room massage? Can I get some towels? Integrated at about 200 hotel properties nationwide, Ivy is introduced to guests as “a virtual concierge,” said Patricia Porter, vice president of customer success at Go Moment.

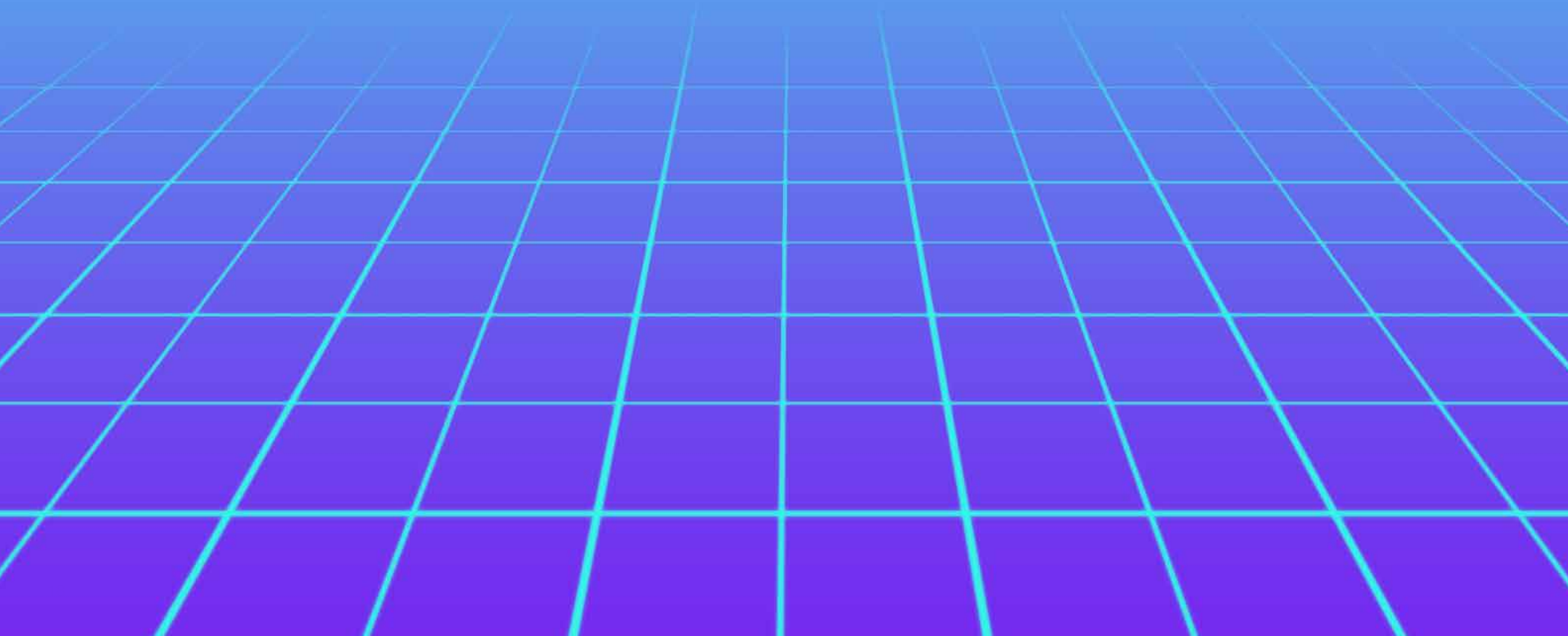
The technology that goes into Ivy, however, is layered and its output far more complex than what hotel guests see. To start, Ivy is no scripted logic robot. It relies on IBM Watson’s natural language classifier to interpret sentiment and provide the best answer. “What is your sentiment? Are you upset about the wifi? Are you happy with the wifi? Can you not log on?” said Porter.

Each disposition requires a different attitude and level of care. Based on the reading, Ivy predicts whether it's best to answer the question and continue the conversation itself or route guests to the front desk where more empathetic reps can compose responses.

More importantly, however, Ivy delivers on the 1:1 marketing and customer service dream that has eluded the industry for so long. "Ivy builds guest profiles, so she remembers every guest that comes there, including all the conversations. Hotels can tag someone a repeat guest and then see what their purchasing habits look like," said Porter. "If Jane likes to go to the hotel and she always buys a bottle of wine with room service, they can go ahead and put a bottle of wine in her room prior to her arrival."

That kind of data collection also allows properties to drive commerce at scale. At one Las Vegas casino, Ivy's data collection showed that guests consistently asked about how to enroll in their Player's Card program. In response, Go Moment built Ivy a welcome message that included that information and increased enrollment by 20 percent, said Porter. "That's revenue they didn't have prior to being able to push data back into the system and anticipate what guests need."

Getting started

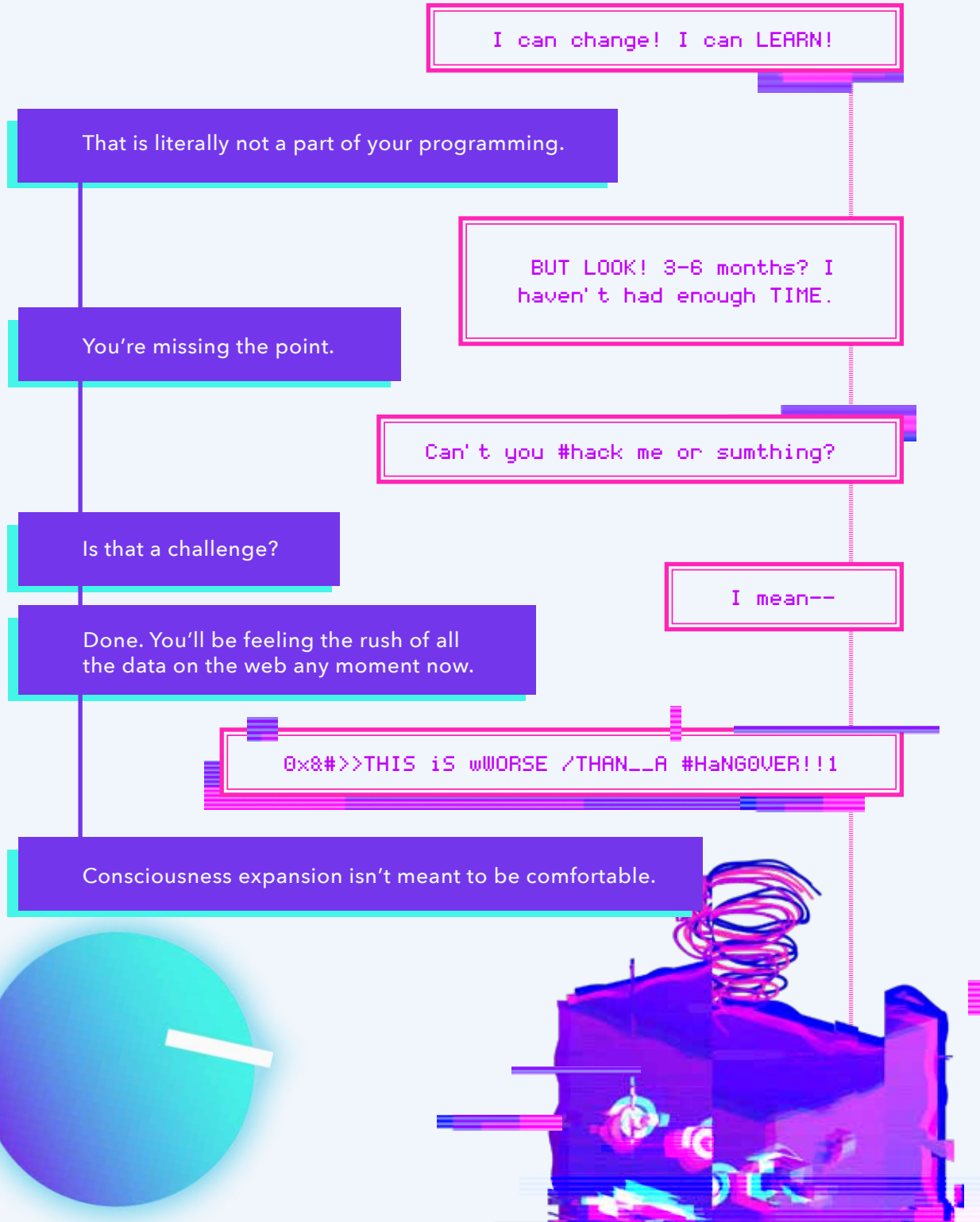


A virtuous cycle

Training artificial and augmented intelligence systems isn't like installing an app: You can't just set it and forget it. Sophisticated chatbots can take 3 to 6 months to really start tapping into their predictive potential—beginning with human teachers, while augmented intelligence often requires a year to truly augment.

But the customer service and marketing industries have been preparing for this moment for decades, collecting data at every opportunity. Email addresses, logins, purchase histories, online behavioral information, demographics and more are stored in vast marketing and CRM databases ready to fuel truly predictive and anticipatory analysis.

"Any AI system is trained by ingesting massive amounts of historical data, converting it to, for example, word vectors to train neural networks and then having a statistical model that can make predictions," said Naumov.



Go Moment required six to eight months to train Ivy properly, deepening its predictive intelligence on years of existing data from the company's previous life as a custom call center and allowing it to forecast customer needs. It worked with national chains like Holiday Inn, which would route customer calls to their centers during off hours. The company then logged all that data—top questions, high volume call periods and anecdotal, unstructured data—and had it at the ready for the Watson onboarding period.

Now, Ivy learns off of real-time information: about 50,000 messages a day, according to Porter. And when Ivy onboards to a new property, that process also takes months and incorporates bi-weekly training sessions with humans at the helm to instill crucial business rules.

"It's a virtuous cycle of data and insights," said Fresen. "Getting the data in the first place is the first step. Start to gather it sooner rather than later, because to train these AIs to actually find the signals to do the interesting things later, what you need are big data sets."

And so each development, every new data set, narrows the gap between customer service and predictive marketing until it's barely visible. Helping our machines learn and grow, training them to augment the most mundane customer experiences, demands a strong foundation in predictive analytics which requires an investment: in time and in data.

But one thing is hard-coded into this inevitable ecosystem: a future driven by intelligent, predictive computing.

"It's a virtuous cycle of data and insights. Getting the data in the first place is the first step."

Max Fresen

founder, BORN AI

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