

First Data[®]

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CONNECTED

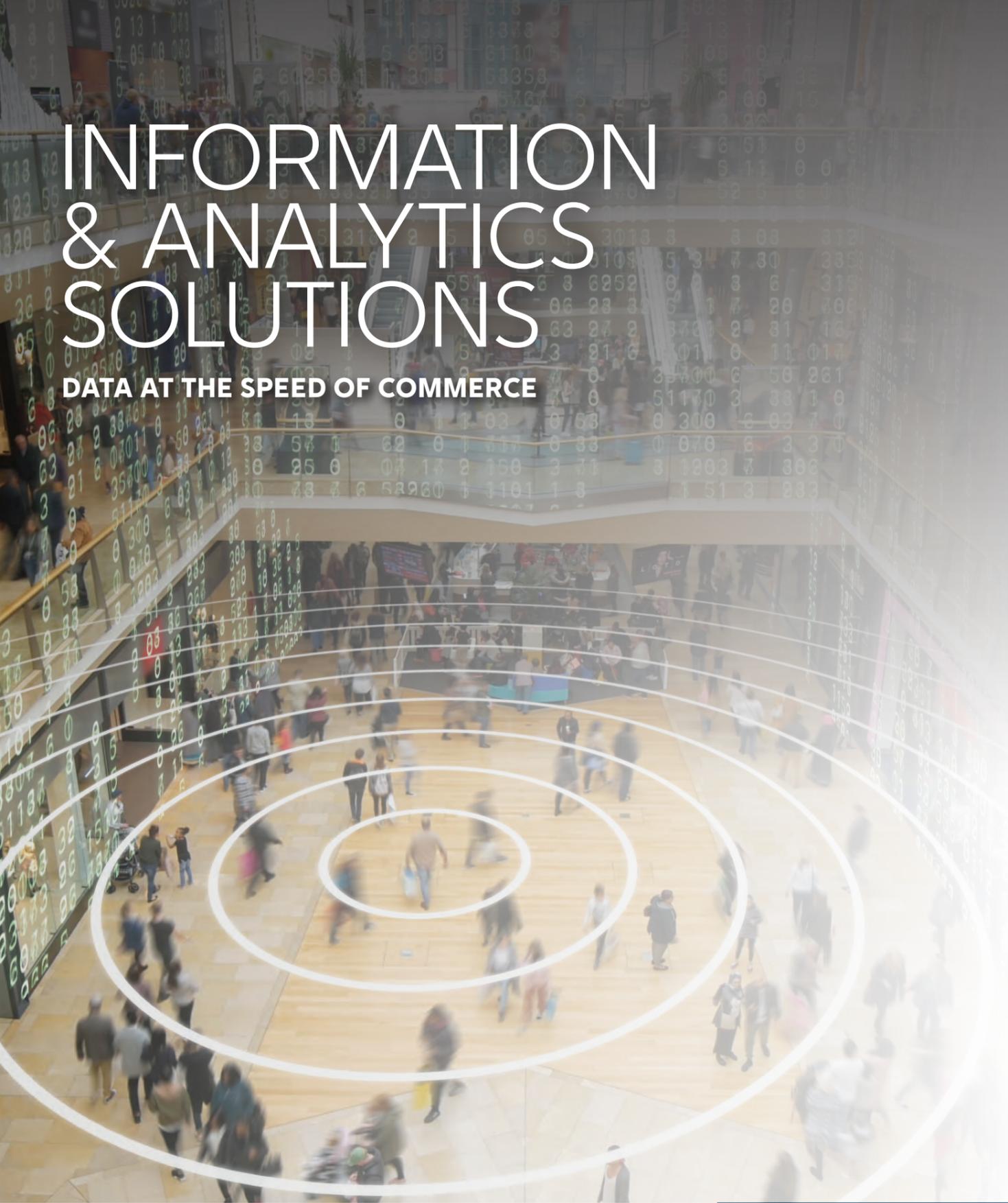
T H E C E N T E R O F C O M M E R C E



THE INNOVATORS

INFORMATION & ANALYTICS SOLUTIONS

DATA AT THE SPEED OF COMMERCE



How well do you know your customers?

First Data® Analytics Solutions can help you make data-driven decisions based on customer spending habits to help you retain loyal customers and attract new business.

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Building the new retail frontier.



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UNLOCKING MERCHANT INNOVATION

Using machine learning to combat fraud.
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DOWNLOAD THE DIGITAL MAGAZINE AT: FIRSTDATA.COM/CONNECTED

GAME



Say hello to Melody, the best friend of CONNECTED Managing Editor, Lexi Koutrelakos.

Not sure about you, but our dogs are always finding innovative new ways to get our attention.

Through this issue of *Connected*, we take a look at how partnerships, changing consumer landscapes, and fraud breakthroughs are fetching innovative ideas across industries – Leonardo da Vinci and Thomas Pugison would be so pleased. As you're reading, keep an eye out for the pooches and pups hidden throughout the pages and count them up. Then, send your total to CONNECTED@firstdata.com by June 30, 2018. We'll gather all the correct answers and randomly select five winners to receive a \$200 Gyft® digital gift card. Sniff them all out!

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In the 1960s, banks had a cool idea. They wanted to make it easy for their customers to shop and pay at many different retailers using a single card from a single line of credit. No more hassling with different charge cards from multiple retailers, or having to deal with cash or checks. From this important consumer demand birthed the modern network credit card industry.

Having an idea is just the first step in turning an unmet need into a valuable innovation. But, translating the idea into a workable, scalable and secure solution is where true innovation happens.

First Data® has quietly delivered such innovative breakthroughs over and over again.

In the beginning, First Data built the infrastructure for interoperable card payments that we still use today. That infrastructure allows financial institutions to issue and manage cards from any brand safely, securely and with great efficiency. First Data also built the capability for consumers to use those same cards to shop nearly anywhere, anytime, in any currency, using any network. Today, these systems host more than 1 billion cards and 6 million merchants around the world. Every second of every day, consumers rely upon First Data to conduct commerce, completing more than \$2.5 trillion in transaction volume annually. First Data built a new way to get something important done – one of the most impactful, enduring and transformative innovations of the 20th Century.

Today, the pace has accelerated, demanding more from all involved. Darwinian survival can't be assured, because the ecosystem is no longer static. Customers are disrupting the core ecosystem by making new, moment-to-moment choices. In response, financial institutions and businesses must hyper-accelerate their own innovation to meet these rapidly evolving demands.

Innovation is all about execution. No one company, no matter how big or agile, can innovate alone. Every innovator chooses their partners wisely. It takes a diverse network of forward-thinking leaders working together across companies, industries and regions to turn an idea into a value-creating innovation success.

In this issue of *Connected* magazine we look at The Innovators – those moving beyond ideas to execution, using partnerships, the speed of technology and a little spark of intuition to capture, create and define our tomorrows.

First Data is the right partner for these times. We stand at the intersection where financial institutions, businesses, merchants and consumers all connect to conduct commerce. Our role in the ecosystem is vital and our perspective and expertise allow us to help turn good ideas into powerful innovations.

Very simply: First Data executes.

How can we help you succeed?

Barry McCarthy

First Data, EVP, Head of Network & Security Solutions



"It takes a diverse network of forward-thinking leaders working together across companies, industries and regions to turn an idea into a value-creating innovation success."

Just as “no man is an island,” the success of a company does not stand on a single person.

This is especially true at First Data®, where every employee is considered an “Owner-Associate.” This not only gives them a stake in the company, but also makes everyone accountable for company growth. Thankfully, the collective expertise of our team supports our ability to innovate and deliver solutions that help drive the new world of connected commerce.



Chris Abele

First Data, Director, Corporate Strategy

Corporate Strategy Director helping to chart new paths of growth for First Data. Always interested in digging into the latest in payment technology.



Rishi Chhabra

First Data, VP, Information & Analytics Solutions

Rishi joined First Data in 2013 and is responsible for building, commercializing & launching the next era of Big-Data and data-driven solutions powering multi-channel commerce and customer engagement for Merchants, Retailers, Financial Institutions and third-party institutions. He has spent over 12 years in the financial institutions and payments industry building analytical solutions to optimize the use of payments data and enable cross-channel commerce at multiple pioneering and leading companies.



Glenn Fodor

First Data, SVP, Head of Information & Analytics Solutions

Glenn Fodor joined First Data in August of 2014 as Senior Vice President and is head of Information and Analytics Solutions (IAS). The reports and insights that IAS compiles are frequently referenced in the press, including the Associated Press, CNBC, Wall Street Journal, Reuters, Bloomberg TV, and more. Previously, Glenn was a Partner and Senior Equity Research Analyst at Autonomous Research, a boutique research firm focusing on the financial and payment technology industries and has held equity analyst roles at Morgan Stanley, UBS and JP Morgan.



Scott Mackay

First Data, VP, Digital Commerce Solutions

Scott's focus is on directing the development of digital commerce solutions, targeting innovations that meld the traditional components of financial services and payments with emerging mobile, marketing, and web-enabled technologies. He also manages the commercialization and sales processes necessary to bring these new solutions to market.



Anthony Marino

First Data, EVP, Global Head of Human Resources

Anthony S. Marino is the global Head of Human Resources for First Data. He is a thought leader in the human capital management space having served in senior roles with some of the world's largest corporations. He is a frequent lecturer and has written several articles on people and performance-related topics.



Barry McCarthy

First Data, EVP, Global Head of Network & Security Solutions

A 13-year veteran of First Data, Barry has run most of the firm's businesses and is known for his ability to deliver strong revenue and profit growth through innovation. He served previously as an executive at Procter & Gamble, Wells Fargo, Verisign and Silicon Valley micro-payments start-up, MagnaCash. He currently oversees Network and Security Solutions (NSS), one of the firm's three publicly reported segments. NSS hosts many of the firm's value-added solutions that help clients protect, grow, and operate their business more efficiently. NSS is a \$1.5 billion revenue portfolio of solutions including: Gyft® and Gift Solutions, TeleCheck®, ConnectPay® (ACH), TRS Collections, RAPID®, FRIS® and Fraud Detect® fraud solutions, Money Network®, STAR Network®, TransArmour®, debit processing, Apiture® online and mobile banking, tokenization for mobile payments, and government solutions.



Sandy Mollett

First Data, SVP, Head of Network & Security Solutions Operations & Controls

Sandy has over 30 years of experience in IT, Operations, Product Development, Project/Program Management, Strategy and Business Development. She has driven some of First Data's largest strategic initiatives and is named on over 25 issued patents. Sandy served on the Executive Planning Group for FinTech Atlanta. She is also President of the AGLCC (Atlanta's LGBT Chamber of Commerce). Sandy was honored by the Georgia Diversity Council as one of 2017's "Most Powerful & Influential Women".



Dom Morea

First Data, SVP, Head of Gift Solutions

Currently, Dom oversees First Data's prepaid Closed Loop product suite, Gift Solutions, spanning processing, card program management and robust digital services. He was formerly First Data's SVP, Business Development, where he was responsible for the creation and growth of enterprise-level transformational mobile commerce and loyalty solutions initiatives and he headed First Data's Innovation Lab & User Experience team.



Nigel Motyer

First Data, SVP, Head EMEA Acquiring

Nigel has a wealth of experience in the card payment business, having held a number of senior roles during his 30-year career. In 2007, Nigel was part of the management team that created the AIB Merchant Services joint venture and he later became General Manager. Having previously been a member of the Board of Directors of AIB Merchant Services, Nigel currently sits on both the Board of directors for ICICI Merchant Services, First Data's joint venture in India and the Board of First Data Europe. In February of 2018, Nigel was elected to Visa's Client Advisory Council.



Peter O'Halloran

First Data, VP, International eCommerce

Peter is responsible for First Data's eCommerce strategy and the commercialization of the eCommerce value proposition throughout EMEA, APAC & LATAM. This includes partnership formations, top-line eCommerce revenue growth through existing First Data sales channels, and increasing the addressable market through product innovation and client acquisition.



Seth Perlman

First Data, VP, Global Head of Strategy

Seth has been with First Data since 2014, and from his home base in Silicon Valley, he has his finger on the pulse of the rapidly evolving world of fintech. He and his team develop growth strategies for all of the company's business lines globally. Seth frequently presents First Data's insights about commerce innovation and financial services trends to clients and industry partners around the world.



David Ridenour

First Data, Director, Universal Commerce Solution Consulting

David serves as Head of First Data's Universal Commerce Solutions group, which is responsible for enabling our clients' digital strategies. David has been with First Data for 10 years and is a seasoned payments veteran; having worked in a variety of roles from fraud, point of sale, issuing services, loyalty and analytics. Prior to First Data, David was a top-performing sales executive in the marketing automation space with Oracle.



Dania Ruiz-Paramo

First Data, Senior Account Executive

Dania is currently an Account Executive within the National Retail Vertical, overseeing 12 strategic accounts. Having spent 20 years with First Data, Dania has supported hundreds of national merchants in both technical and relationship roles.



Mark Schulze

First Data, VP, Business Development & Co-founder of Clover

Former product guy, now a Business Development leader for Mobile, Web, Android, and iOS.



Nandan Sheth

First Data, SVP, Global Debit Solutions

Nandan is a seasoned innovator with over 20 years of FinTech experience within large corporation and high-growth, venture capital-backed companies. He is the founder of three disruptive FinTech ventures: CollectionsX, Harbor Payments, and Acculynk. His expertise includes cross-border commerce, online/mobile commerce, debit/alternative payments, B2B receivables/payables, and online bill pay.



Mia Shernoff

First Data, EVP, Global Head of Marketing

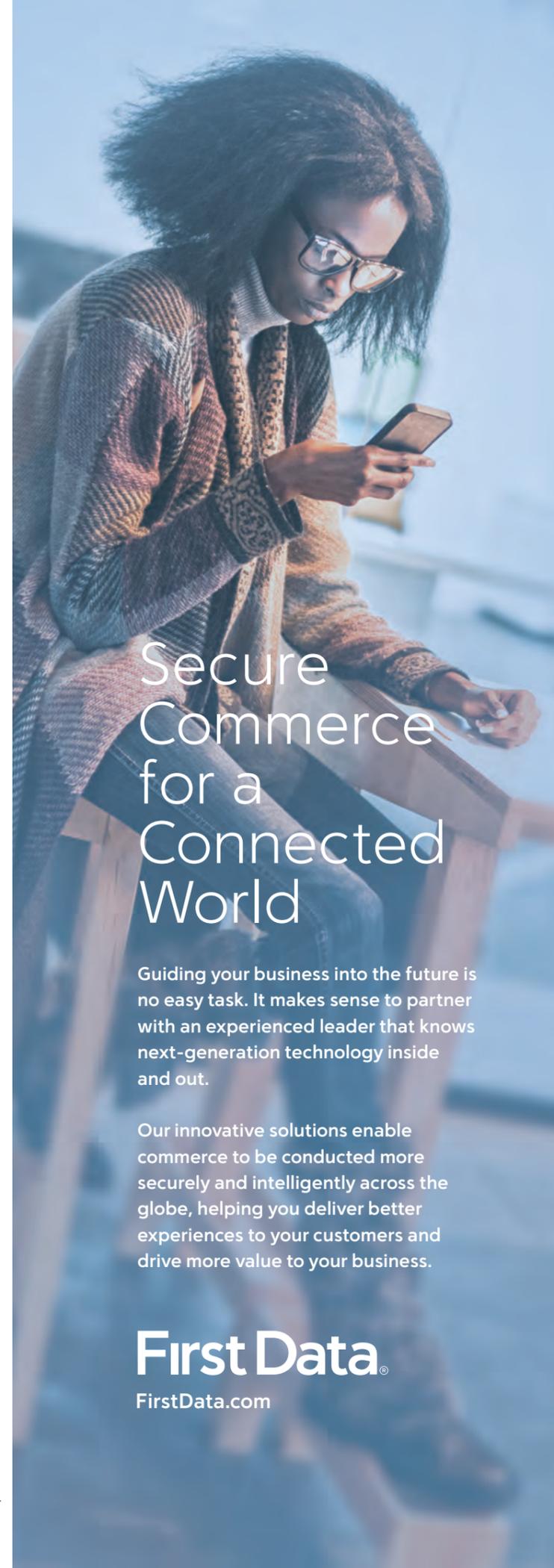
Strategic marketing, product management, digital account acquisition, and brand innovation executive with over 20 years of global payments, and FinTech industries, with focus on B2B business development.



Meagan Johnson

Generational Expert

Megan Johnson is a professional speaker and generational expert who has chronicled the rise of Gen-Z in her book, *Generations, Inc.* She's a bright, funny, and delightfully obnoxious Generational Humorist!



Secure
Commerce
for a
Connected
World

Guiding your business into the future is no easy task. It makes sense to partner with an experienced leader that knows next-generation technology inside and out.

Our innovative solutions enable commerce to be conducted more securely and intelligently across the globe, helping you deliver better experiences to your customers and drive more value to your business.

First Data®
FirstData.com

MOBILITY HITS ITS GROOVE

ADVANCES IN ARTIFICIAL INTELLIGENCE ARE USHERING IN A NEW ERA OF PERSONALIZED EXPERIENCES AND CROSS-PLATFORM CONVENIENCE.

BRAD RHOADS

It's not noisy or sudden. There's no Steve Jobs pacing a giant stage in a black turtleneck holding up alien technology to cheering fans. But, if you listen closely, you can hear the opening salvo of revolution – one that's killing the app and freeing up our mobile shopping experience. It's being driven by advances in artificial intelligence and a new generation of virtual assistants that we can now access without our smartphones or tablets.

It started with Siri, almost seven years ago. The first widely-adopted virtual assistant, she – um, it? – gave us access to our apps through voice commands. It was more seamless than typing but less intuitive. The menu of available commands was limited. Still, there was something excitedly Star Trekian in our ability to project our will across open air, even if it was just to say, "Hey Siri, play Firework."

But, while Siri, and later Microsoft's Cortana, remained app interfaces, competitors like Amazon and Google had different ideas. Amazon sought innovative ways to sell more stuff on its online marketplace – and Google ... well, Google wanted to take over the world.

Amazon's Alexa and Google Assistant were smarter than Siri and they were multifunctional, with better common-language capabilities. And, because they weren't app-based, they were able to deliver personalized connected experiences across every device that a consumer owned. Google Assistant is accessible with Google Home smart speakers, on phones, computers, tablets, smart watches, smart displays, connected TVs, and in your car.¹ Google saw the potential of multiplatform virtual assistants early in the game when it bought Nest[®] back in 2014. Today, a user can remotely set their thermostat, dim lights, or access security cameras from anywhere in the world.

Mobility is also extending into streaming services. "Now, you can be listening to Spotify[®] or Sirius XM[®] in your house over Amazon Echo, then have that same channel follow you as you walk to your car, and for the whole ride into work," says Scott Mackay, First Data's Vice President of Digital Commerce Solutions, who's working to connect the clients on First Data's long list of formidable partners.

Not only are they catching the customers where they are, but they're also able to hyper-personalize the user experience. Through loyalty programs, customers can get a drink made exactly the way they like it at Starbucks[®].

David Ridenour
First Data's Director of Universal Commerce Solution Consulting

Ridenour, First Data's Director of Universal Commerce Solution Consulting. "Not only are they catching the customers where they are, but they're also able to hyper-personalize the user experience. Through loyalty programs, customers can get a drink made exactly the way they like it at Starbucks[®]."

Like planets clustered around a star, physical retailers are aligning themselves with online giants. With First Data's help, both Google and Amazon have compiled an impressive list of traditional brick-and-mortar clients who can now offer their customers voice-ordering over smart speakers.

In turn, Amazon and Google have expanded their footprints into the physical world, giving them the ability to deliver goods with even more immediacy than before, and leveraging retail locations to deliver products and accept returns.

"We're bringing together mobility solutions on any platform," says Mackay. "For instance, Ford[®] says it's no longer an automobile manufacturer, it's a platform for consumers in motion. So, we're here to help [them] with their payments connections. That means, you can now bring the virtual assistants with you, and pay at the pump with, say, Google Pay." Amazon might be taking mobility to its furthest extremes. They completed their acquisition of Ring[®], the video doorbell service, just a few months after buying the Blink[®] home security unit.² On the surface, those purchases could look like more moves to secure Amazon's dominance within the smart home market. But, all those cameras also give Amazon access to consumer information. Down the road, that technology could allow Amazon (with your permission) to scan your home for needed items, like cereal or toothpaste, and alert you when it's time to restock.³

In other words, these platforms, which help make everything more mobile, work in both directions. "Corporations can now look at consumers holistically," says David

Both Ridenour and Mackay are helping design personalized experiences through connected car platforms that learn from passive inputs, using artificial intelligence. "GM gives merchants access to its head units, which can track [the car owner's] shopping habits at fuel stations, restaurants, and retailers," Mackay says. "First Data[®] then links payments from the car to those merchants for a seamless experience."

All these solutions require some device to make them work. But, are we close to a truly device-free solution? Absolutely. Apple already allows facial-recognition technology to authorize payments from a smartphone. And in Japan, Alibaba's Ant Financial has experimented with facial recognition at KFC[™] kiosks where customers paid for their meals with just a look, no smartphone needed.⁴

Of course, there are ample, and justifiable, concerns about privacy. For instance, consumers might not be thrilled when Amazon correctly alerts them to restock bath soap or toilet paper. But, as the world becomes more mobile, and as we become more accustomed to sharing our shopping experiences, merchants will seize any opportunity to cater to the new mobile consumer. ▽

In This Article:

- #MobileShopping
- #ArtificialIntelligence
- #VirtualAssistants
- #RuleTheWorld
- #SmartTechnology

\$8.45
BILLION

Current scale of annual fraud on the dark web¹

40%
GROWTH

Current Compound Annual Growth Rate (CAGR) of the dark web¹

\$189
BILLION

Total annual commerce on the dark web by 2020¹



THE NEW FACE OF FRAUD

Forget unkempt, pale figures in dimly lit rooms filled with computer screens. Today's fraudsters wear business suits. They work in real offices, keep regular hours, and openly market their products and services. "The reality is, it's become big business," explains EJ Jackson, SVP & GM, Security & Fraud Solutions at First Data®. "It's moved away from this lone individual on their computer wearing a hoodie to organized groups who are collaborating, using cutting-edge technology and leveraging machine learning to defraud businesses as much as they can - and doing it out in the open."

CHALLENGE ACCEPTED

OUTSMARTING FRAUDSTERS ON AN EVER-CHANGING BATTLEFIELD

✍ ANITA J. FINKELSTEIN 📧 GREG GATLIN

99.7%
VULNERABLE

The percentage of web applications that Trustwave scanning services tested in 2016 that displayed at least one vulnerability.²

\$5
PER AD

Estimated cost for cybercriminals to infect 1,000 vulnerable computers with malvertisements.²

\$20
PER IDENTITY

Dark market value of a single individual identity (name, SS#, DOB, address, phone number).³

30
CYBERCRIME ORGS

Number of cybercrime organizations in Russia, generating a black market valued at \$2B per year.⁴



FRAUD AS A LUCRATIVE CAREER CHOICE

The biggest fraud organizations now recruit top talent from universities. "The stigma of this sort of endeavor seems to be gone, and the financial rewards are greatly motivating," points out Jackson. "It's not perceived as a criminal activity. In some cases, it might not be illegal in the locality they are in, or if it is illegal, it's not enforced." So, he says, the risk of getting caught is low. "In many places, the local government turns a blind eye. They not only advocate it, they promote it, because it's in their state's interest to allow the activity to go on for the economic benefits."



FIRST DATA®: FIGHTING FRAUD WITH END-TO-END SOLUTIONS

The Security & Fraud Solutions team that Jackson heads up at First Data, continually develops and innovates products that help issuers and merchants prevent, detect and mediate fraud. We encrypt and tokenize card data for over 170 billion transactions a year, while Fraud Detect® analyzes and scores incoming transactions to help identify fraud before it happens 80% of the time. "By combining our access to big data, with machine learning and a 200+ person cybersecurity team that actively monitors the dark web, we can identify fraud more quickly than ever, dramatically reducing fraud, and fraud costs for merchants," says Jackson.

1.50+
MILLION

Merchant outlets protected by TransArmor® which encrypts and tokenizes consumer data both in-flight and at-rest.⁵

80%
REPORTED

Reported improvement in fraud detection by a big-box retailer using Fraud Detect®.⁵

.5
SECONDS

Amount of time it takes Fraud Detect to deliver a risk assessment score for a transaction to ensure it does not impede the customer experience.⁵



THE NEW DIRECTION OF FRAUD PREVENTION

Jackson's team is also working with solutions that render stolen data useless. FirstSense™ improves fraud alerting for financial institutions by mining the dark web and using machine learning to identify stolen data much earlier in the resale cycle. The goal is to warn institutions when their data is in the hands of criminals, so they can scrub accounts before they reach the dark web marketplace, lowering their value to fraud organizations.⁵ Jackson believes the breadth of data First Data works with is what ultimately enables his team to outsmart fraudsters. "Having access to such a large set of global data from credit cards, debit cards, and gift cards provides us with massive truths that machine learning can use to make better and better decisions, which helps us identify and prevent potential fraud better than ever."

3,800
FINANCIAL INSTITUTIONS

The number of Financial Institutions that use First Data Security & Fraud Solutions to protect their data and their customer's data.⁶

130
LOCAL CURRENCIES

The number of local currencies First Data processes payments in for merchants in over 40 countries, across all networks, all brands, and all payment methods.⁶

99%
ACCURACY

After identifying a compromised Bank Identification Number (BIN) First Data can accurately identify compromised Personal Identification Numbers.

REWARDS REVOLUTION

The humble gift card has evolved from a quick and easy gift to a powerful form of branded currency.



Gift cards have always held a special place in our hearts. They make excellent stocking stuffers, they save us in last-minute gift situations, and they're the perfect addition to our brother's birthday card when we have no idea what to give him.

But gifting is only a small part of the evolving gift card story. They have become powerful tools for persuasion – able to build brand loyalty, drive down shopping cart abandonment,

create incremental sales, and bring in new customers. Today, gift cards are the newest form of branded currency, able to influence purchasing decisions by equipping customers with incremental spending power.

In the world of “branded currency,” coupons, gift cards, and loyalty points have become as valuable to merchants, and to consumers, as cash itself.⁴ While they've been around for years, the growth of digital and mobile

has given brands from big box retailers to financial institutions new opportunities to use them as rewards and incentives that can both gain and retain customers.

“The gift space is really evolving because of the influence of connectedness,” explains Dom Morea, SVP, Head of Gift Solutions at First Data®. “The ability of mobile to track, send, and store data enables us to deliver branded currency to consumers in a way that goes beyond standard gift-giving or gift-receiving.”

Not only can digital gift cards be delivered more quickly to elicit an instant response, they are also more cost-effective. “When delivery is purely digital, merchants can move much more nimbly to set up promotions,” says Morea. “If our clients want to run a promotion with branded artwork and animation and put it on a mobile device or the web, we can do it in weeks, rather than the months it would take to set up in a brick-and-mortar store.”

“What’s really driving the rewards revolution is the technology First Data® developed that connects gift card programs to loyalty programs and facilitates an in-app mobile experience where users can track their balances and manage their earned points.” Morea points out that brands including Starbucks®, Chick-fil-A®, and PetSmart™ have all integrated the technology into their apps.

Basically, once a customer uploads their digital or ‘eGift’ card into the app and starts using it to make purchases, their spending is tracked, and their loyalty points are automatically credited. Since the merchant can see and

analyze individual customer data, they're able to use it to send personalized instant rewards, discounts, or promotions when they're most relevant.

For example, Chick-fil-A may send a promotion at the end of a work day to a customer who traditionally comes in for dinner, and Starbucks may send an instant reward whenever their system receives a geo-location alert that a frequent customer is near one of their locations.

To make it even easier for merchants to reward their customers, First Data's technology delivers a seamless experience across all devices – so, if the consumer receives an offer at home on their tablet, it will automatically connect to their car dashboard and then directly to their smartphone when they hop out. When they walk in to redeem the offer, it's right there in their hands.

“We've seen great traction with Starbucks,” Morea says. “I think that experience is one that is beginning to take hold for other companies as well. It's becoming the norm to connect stored value or branded currency to loyalty and then engage with customers through push notifications or the mobile app.”

And, reports show that merchants can thank Millennials, at least in part, for the branded currency revolution. According to First Data's 2017 *Prepaid Consumer Insights Study*, this group of 21- to 36-year olds account for the sharpest rise in gift card purchasing.² Plus, they're less focused on purchasing gift cards simply as gifts. Morea says Millennials are self-purchasing gift cards

specifically to take advantage of the special discounts, rewards programs benefits, and for the ease of online shopping that come with branded currency.³

Morea points out that merchants are not the only ones looking to branded currency as a way to engage today's consumers and increase customer loyalty; financial institutions (FIs) are also jumping into the game. First Data's Gift Solutions is helping FIs provide value-added services by integrating with their online banking website or mobile app allowing customers to purchase gift cards.

“FIs are moving tender off the debit or credit card, and also delighting their customers in a new way,” he explains. There are also plans to soon use gift cards to settle up with or regain the trust of disgruntled customers. “If a bank has a remit of a nominal amount, rather than writing a check to the consumer – which is costly – they might send a branded card for \$15. It's cost-efficient and fast, the bank gets a payable off their books, and everyone's happy because the consumer gets their money.”

The next step, says Morea, is expanding the value of branded currency globally. As the world becomes more digital and connected, the opportunity for brands to break into international markets is growing. And with scale that includes a footprint in 55 countries, First Data® can help them do it.

In the coming years, the company hopes to begin engaging more with global sales teams and merchant-acquiring businesses to help them derive the same benefits

“ ”

When delivery is purely digital, merchants can move much more nimbly to set up promotions.

Dom Morea
SVP | Head of Gift Solutions | First Data

of branded currency that many U.S. companies are enjoying.

Acquiring and keeping customers has gotten harder, so First Data continuously innovates to deliver solutions that help keep customers' attention. If the growing question among consumers, particularly Millennials, is “what's in it for me?,” branded currency seems to be one of the best answers.

“Ultimately, if merchants are not engaging in ways that help consumers feel appreciated and save time and money,” said Morea, “they probably aren't going to catch the interest of Millennials or any other generation making up their customer base today or in the future.”

In This Article:

- #GiftCards
- #Gyft
- #Millennials
- #Reward
- #Recognize

Right now, in Silicon Valley and start-up incubators in New York, Amsterdam,

Tokyo and a hundred of other cities around the globe, business leaders are

cracking open corporate DNA and rearranging the code. This isn't the laissez-faire

evolution of MBA textbooks. This is human intervention - designed to change the

consumer experience and conquer natural selection. This is innovation.

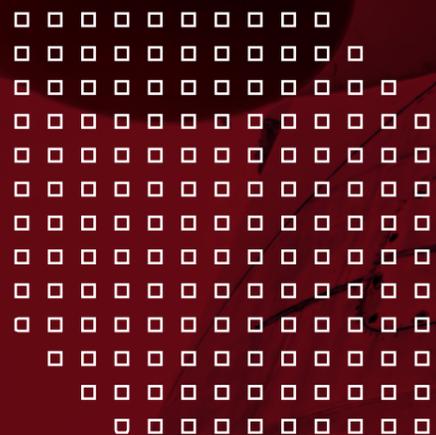
THE INNOVATORS

BUILDING THE NEW RETAIL FRONTIER

BRAD RHOADS

CHRISTOPHER SANNA

An influx of resources, money and manpower is energizing the creation of new, innovative technologies at a pace we haven't seen since the Space Age and Cold War arms race of the 1960s.



It's become a game of one-upmanship on a global scale, with superpowers burning through limitless resources working to survive by becoming the first, the best, the biggest, and the strongest.

Along the way, the rulers of retail have evolved into tech giants offering goods and services far outside of their traditional verticals. And, they're delivering them, along with a string of innovative user experiences all zeroed in on the same objective – creating a fortress inside their customer's homes.

What at first seemed like a natural extension of a business model is revealing itself as a tactical fistfight. Google jumped in first with Google Express, which allows customers to order nonperishable groceries from partner stores and receive them in just a few days. The innovation? You can do it from any connected device, just by saying, "Hey Google!"

Next, one of Google's partners, Walmart², decided it would be better to bring perishable and nonperishable groceries to your door in hours instead of days.² And, it found an easy way to make it happen by tapping into the expanding matrix of Uber drivers, rather than creating a fleet of its own.³

And then, there's Amazon. It bought an entire enterprise, Whole Foods⁴, which already accepted the most online grocery orders.⁴ It linked those orders to the Alexa/Echo universe, and sped them to your house in under an hour,⁵ and shipping is free for Prime Members⁶ (Hint: half of Whole Foods⁷ shoppers were already Prime Members).⁷ For good measure, it added Amazon Meal Kit, to give customers the option of having items bundled into ready-to-prepare dishes, pulling hungry shoppers away from meal-kit delivery innovator Blue Apron.⁸

"That's the goal. Retailers – both offline and online – now want to control last-mile delivery to consumers," Chris Abele explains. As the Director of Corporate Strategy at First Data⁹, he stays connected with evolving commerce trends. "This is what consumers want. They want it today, within hours. They want it at their door, and they are willing to pay for it."

So, whether consumers are purchasing through big retailers, or getting restaurant food delivered to their door using experience-minded mobile apps, like GrubHub, Uber EATS, and DoorDash¹⁰, First Data⁹ is designing the technology that's keeping the payment process not only easy and seamless but also behind the curtain and out of view. Abele says, "The more nuts and bolts activities like payments are blended into the overall consumer experience, the better." Of course, home food delivery isn't a novel idea. Pizza shops have boosted sales for decades with doorstep delivery. The 30-minutes-or-less model evolved into online ordering and mobile apps now used by every major pizza chain.

But Domino's realized early-on that innovation was its path to differentiation. It famously transformed into a tech company (that happens to make pizza). For starters, it was the first pizza chain to take orders over smart speakers like Amazon Echo and Google Home, as well as Apple Watches, Facebook and Twitter (remember the pizza emoji tweet)?¹¹ And now, even its app is making headlines with a "no-click" feature that orders for you in just 10 seconds.¹²

With the help of First Data⁹, Domino's also built a Baby Registry¹³, the natural successor to Domino's Wedding Registry,¹⁴ that lets friends send pizza and pizza-themed gifts to new parents and newlyweds.

The last-mile delivery concept also transformed Millennial-favorite IKEA¹⁵. The "assemble-it-yourself" furniture maker bought the innovative start-up TaskRabbit, which allows users to submit requests for services they need, like dog-walking or housesitting, and then wait for pre-screened taskers to bid on the job. Now, assembling IKEA furniture is a top TaskRabbit service.¹⁴



This is what the consumers want. They want it today, within hours. They want it at their door, and they are willing to pay for it.

Chris Abele
Director | Corporate Strategy | First Data

With IKEA encroaching on its turf, Amazon created Amazon Home Services, to offer customers a new and simple way to buy and schedule professional services such as furniture assembly, house cleaning, and appliance repair directly on Amazon.com.¹⁵ It also allows Amazon to sell home improvement products like flooring, carpeting, and drywall to customers who aren't comfortable with the do-it-yourself (DIY) concept.

For those who *want* to try DIY, Lowe's¹⁶ partnered with Porch, an innovative 24/7 support service that connects customers with experts who can help with home improvement projects. Customers can hire contractors directly through the site,¹⁶ request personal, guided instructions on installations and assemblies, or chat to get quick advice and ideas.

Lowe's was also the first retailer to use virtual reality (VR) to run home improvement clinics.¹⁷ It offers the *Holoroom How To* experience, providing on-demand DIY clinics to customers. They also jumped in the augmented reality (AR) game. Following in the footsteps of Amazon's AR View,¹⁸ they launched the Envisioned app last October. Both use AR to generate sales by allowing customers to digitally place a piece of furniture inside their home to see how it looks before purchasing it.¹⁹ "In the last year, we've seen AR evolve to be much more than a way to chase virtual monsters in *Pokemon Go*," says Seth Perlman. As First Data's Global Head of Strategy, he and his team keep on top of new technologies that are reshaping commerce. "It could prove to be a powerful tool to remove uncertainty and doubt about a potential purchase. Especially for categories such as apparel and home goods, where it can be hard to make a buying decision based only on a two-dimensional thumbnail image."

Technological advancements are also impacting the way people give gifts. What started as simple paper gift certificates has evolved into instant and engaging digital experiences. With help from First Data⁹, Walmart²⁰ is using unique app technology to offer reloadable eGift cards like Basic Blue, which once purchased can be reloaded not only by the owner, but also by friends and family as a "gift" for new occasions.²⁰

» INTRODUCTION

The world of eCommerce lost \$60 billion in fraud in 2017.¹ And beneath this massive figure there's a world of additional pains.

Fraud results in:

- » Losing money to chargebacks and spending time disputing them.
- » Declining legitimate customers due to poor fraud controls.
- » Losing stolen goods and the money spent on shipping.
- » Bottlenecking order fulfillment with manual reviews.
- » The threat of being labeled a "high risk" merchant.

While fraud teams focus on fighting waves of new fraud, innovation teams on the other side of the organization are focused on creating new revenue streams, and keeping up with changing customer expectations.

As the decade nears its close, merchants are trying to solve for risk and business opportunity at the same time, and they're building bridges across their organizations to have big conversations. In this ebook, we'll try to move the conversation forward.

Read on to discover:

- » The most pressing trends in business and fraud that are shaping the future of retail.
- » Success stories of customers who have innovated their fraud detection systems with Fraud Detect®, a comprehensive fraud detection solution utilizing a machine learning platform.
- » Actions merchants can take now to be proactive in a changing world.

Chapter 01

MERCHANTS ARE EVOLVING THEIR BUSINESS MODELS

Shopping is about to get interesting. If merchants have learned one thing in the past few years, it is customers are clamoring for continuous innovation.

THEY'RE SHOPPING ONLINE.



of surveyed shoppers last year told Deloitte that they planned to do more holiday shopping online than in stores.²

THEY'RE BUYING WITH THEIR PHONES.



\$2.6 billion

The biggest shopping day last year was not Black Friday, but Cyber Monday – and a third of the \$6.6 billion consumers spent that day was via mobile phones.³

THEY'RE USING NEW PAYMENT METHODS.



\$500 billion

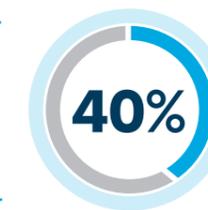
The volume of payments via wearables is expected to exceed \$500 billion by 2020.⁴

THEY'RE LEANING ON VIRTUAL SHOPPING ASSISTANTS.

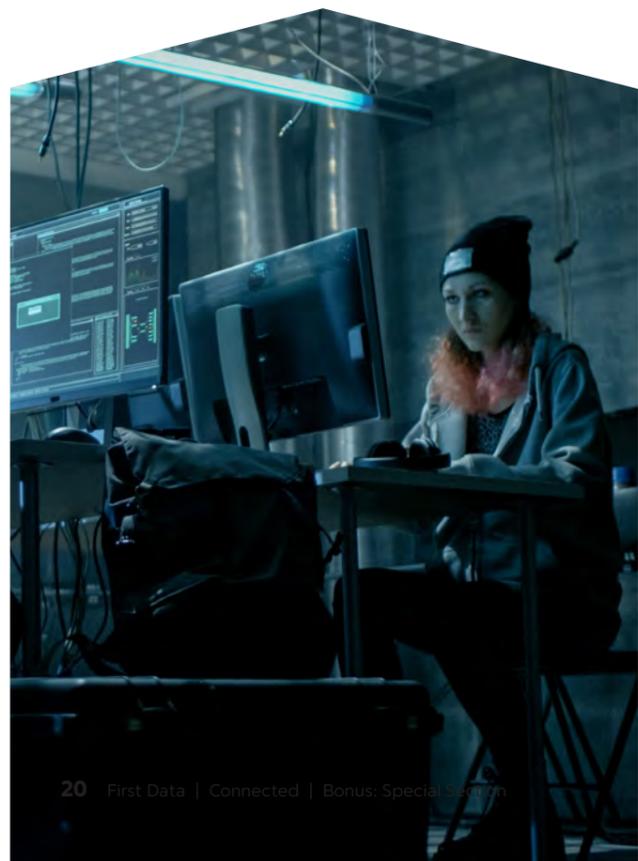


The North Face spent one year training the AI algorithm behind its "Expert Personal Shopper" so it could make recommendations about clothing for consumers.⁵

AND THEY'RE BUYING THINGS WITH ONE CLICK.



Now that Amazon's 20-year patent on 1-click payments has expired, merchants are looking for ways to capitalize on fast payments. Shopify Pay found that increasing checkout speeds by 40% led to an 18% higher conversion rate for returning shoppers.⁶





Merchants
have to get
creative
to remain
competitive.

THE LATEST
INNOVATIONS IN
COMMERCE ARE
EXCITING FOR
CUSTOMERS, BUT
THEY ALSO BRING
ON UNIQUE AND
NEW CHALLENGES
WHEN IT COMES TO
FIGHTING FRAUD.

Email selling

Twenty years after Amazon patented 1-click orders, and two years after social media companies like Pinterest introduced instant “buy” buttons, merchants are looking for the next trend in instant payments.

For example, the startup Rebel is trying to turn email into a merchant-owned channel by enabling customers to make purchases from inside their emails, rather than having to click through to a web browser. Making it easier for customers to complete purchases can create a great customer experience and increase revenue.

Voice-based shopping

Thanks to voice selling, Amazon’s Alexa could create \$10 billion in revenue by 2020.⁷ And now that Target and Walmart have partnered with Google to allow voice shopping through Google Assistant, voice computing has become an important new revenue platform – but only for a select few of the most giant merchants.

Small and mid-sized merchants might be shut out of the voice platform for now, but they can optimize their SEO for voice so they show up on searches over voice assistants.

Cross-channel shopping

“Omnichannel” has gone from a differentiator to a given in just a couple years. Merchants are searching for ways to integrate all their channels to provide seamless movement between them. According to Google, 65% of people shopping online will begin a purchase with one device but complete it within another.⁸

Merchants aren’t just integrating digital channels, but physical channels too. For example, Commerce newcomers like Bonobos and MM. LaFleur are expanding their online presence into showrooms, so users can use physical stores as part of their buying journeys.

Wallets

In-store mobile payment volume is anticipated to grow from \$75 billion in 2016 to \$503 billion in 2020.⁹ Mobile wallets accounted for almost a third of Starbucks transactions last year!¹⁰ Wallets can improve the merchant-customer relationship by providing an easier way to pay and a new avenue for personalized promotions. For example, Starbucks “cracked the code” of wallets by offering irresistible enticements through its mobile app, like the capability of ordering coffee ahead of time to skip the line in the store.

IoT is here to stay

The Internet of Things has gone from a buzzword to a Commerce reality. For example, Brita Water is connected to Amazon’s Dash Button and orders new filters automatically when they’re needed. And HP might be resuscitating its lagging printer business in part thanks to Instant Ink, which monitors printer ink levels and sends customers new cartridges before they run out.¹¹

Chapter 02

FRAUDSTERS ARE EVOLVING THEIR BUSINESS MODELS TOO

Fraudsters are using advanced technology.

Merchant fraud used to be simpler: someone waiting in line at the return counter with an item they stole. Today, merchant fraud is part of a teeming, underground economy of coordinated financial crime. Fraudsters are leveraging every tool at their disposal to steal from merchants. They're using advanced technology and leveraging the complexity of the payments ecosystem itself.

Perhaps the most important tool that fraudsters leverage is adaptation. The signature characteristic of today's financial crime is that it's always evolving. Here's a look at the most pressing fraud types and techniques, many of which didn't even exist a decade ago.

THE NEW ECOSYSTEM OF FRAUD



▲ FRAUD TYPES	● FRAUD TECHNIQUES
<p>Triangulation fraud</p> <p>Here's how this works: a fraudster sells legitimate products over an auction account, like eBay, and a customer buys the product. The fraudster receives the money, then orders the same item from a legitimate retailer, pays for it with a stolen card, and ships the item to the buyer. The fraudster gets the money, the customer gets the product, and the retailer sees a normal-looking order. It's only when the chargeback comes a few months later from the victim of the stolen credit card that the retailer discovers the scam.</p>	<p>Bot attacks</p> <p>Fraudsters create customized bots, often with the help of "build your own bot" websites, that use programming scripts to choose products at merchants and try to buy them with a velocity that's not humanly possible, using stolen credit card information. Feedzai has discovered bots that can add to carts five times faster than humans, and bots can be programmed to open fraudulent accounts as well.¹² These bot attacks are concentrated on items that are on sale, have just launched, or are particularly easy to sell.</p>
<p>Sleeper fraud</p> <p>This is a kind of first-party fraud, when criminals open accounts in bad faith using their own identities or creating fictitious ones. In sleeper fraud, criminals will try to simulate normal profiles for months or even years to fool fraud controls. They may even create fake social media accounts associated with these fictitious identities to increase the air of legitimacy. Then they'll switch their behavior to fraud in an instant.</p>	<p>Address malformation fraud</p> <p>When a fraud system detects and blocks a fraudulent address, fraudsters will outsmart the fraud controls with a "malformed address." They'll write the address in such a way that the system can't detect (e.g. "R0ad" instead of "road"), but in a way that the human delivering the package will still be able to recognize.</p>
<p>Chargeback fraud</p> <p>Here a customer will intentionally request a chargeback on a legitimate purchase. The customer might say the item wasn't delivered, the item isn't as advertised, the item was returned without a refund being processed, or they don't remember making the purchase. In friendly fraud, customers will make disputes like these, but because they genuinely are mistaken about the purchase, or possibly because someone in their family made the order without telling them.</p>	<p>Prefix phone pattern fraud</p> <p>Fraudsters will "spoof" local area codes in order to look legitimate. They'll imitate local merchants and fool unwitting customers into giving their personal information. Fraudsters use this same technique to impersonate the IRS and scare people into betraying their own credentials over the phone.</p>
<p>Reshipper fraud</p> <p>This criminal enterprise is run by an operator who recruits unwitting "reshipping mules" through work-at-home job scams. They're promised thousands of dollars a month just to receive and reship packages. The operator sells access to his mules to card thieves, who use stolen card information to purchase products from merchants, ship them to the mule's address, and have them reshipped. The card thieves sell the goods on the black market, and the operator receives a cut.</p>	<p>Synthetic ID fraud</p> <p>Identity thieves create new identities using a combination of real and fabricated information. For example, many will use the social security numbers of children to evade discovery. Fraudsters will also fabricate entirely fictitious information. They'll nurture these identities to appear legitimate, for example, by creating fake social media accounts. And they'll use these identities to steal lines of credit, open fake accounts, and steal goods.</p>
<p>Buy online pick up in store fraud</p> <p>Fraudsters will select this option at online checkout, and then call the merchant asking to have it shipped to them after all. This is a way for fraudsters to bypass fraud screens, because merchants consider in-store pickup orders less risky. Fraudsters also like committing this kind of cross-channel fraud because they count on merchants keeping separate, siloed systems for internal and online purchases. For example, an in-store employee may not see that a customer bought 20 of the same item with 20 different identities.</p>	<p>Offline fraud</p> <p>How can it be possible to see a charge you don't recognize when the card was in your possession the whole time? Fraudsters can easily buy a small device that clones your card in a moment. They'll clone your card into a copy that looks just like the real thing, and use it at points of sale to steal from your line of credit or your debit account.</p>

Key data breaches and credential dumps that are fueling all this fraud.

AS CYBERCRIME HAS EVOLVED INTO BIG BUSINESS, DATA BREACHES ARE INCREASING IN BOTH SIZE AND IMPACT, DISRUPTING ORGANIZATIONS AND LOWERING CONSUMER CONFIDENCE.

1 BILLION
ACCOUNTS COMPROMISED
Yahoo! data breaches of 2013 and 2014¹³



100 MILLION
ACCOUNTS COMPROMISED
LinkedIn data breach of 2012¹⁴



1.4 BILLION
STOLEN CREDENTIALS
discovered by the security firm 4iQ in 2017¹⁵



A closer look at the evolving tactics of ATO fraudsters.

At Feedzai, the fraud analyst Joel Carvalhais analyzed the evolution of a fraud ring that attacked a large commerce client with account takeovers (ATO). ATO fraud is growing rapidly, costing \$2.3 billion in 2016 alone.¹⁶ When Aite asked financial institutions to name their biggest fraud investment priority, their top answer was: retail ATO.¹⁷

Feedzai's analysis demonstrates this ring of ATO fraudsters evolved their tactics in three stages in order to evade detection.

STAGE
1

Fraudsters used stolen credentials from the Yahoo! and LinkedIn data breaches to take over customers' PayPal accounts to steal their card information. Then they used the same stolen credentials to log into the merchant. Fraudsters targeted a whitelist of "good customer" accounts that were auto-approved for orders. They ordered goods under these customers account and sent them to reshipper addresses.

STAGE
2

Fraudsters tried to appear legitimate by changing the billing address field to match the shipping address of reshippers.

STAGE
3

Fraudsters began to modify every major account field, like username and email address, in order to appear even more legitimate and outsmart the merchant's rules.



Chapter 03
HOW THESE CUSTOMERS ARE FIGHTING FRAUD IN A CHANGED WORLD

Legacy technology simply can't detect these newer forms of fraud.

Rules can be effective for stopping certain known behaviors, but rules can reach their limit when it comes to imagining adaptive human behavior.

A model-based approach can uncover interactive relationships in data that rules and humans alone will miss. And unlike rules, models can account for changing human tactics as fraud behavior evolves.

First Data has been deploying Fraud Detect, its machine learning-based fraud detection platform, with national merchants, and the results are in. By combining machine learning models with the existing rules, its customers are increasing fraud detection without adding any friction or alarm.

This adaptive fraud-fighting technology doesn't just stop criminals in their tracks. It also enables cross-functional innovation efforts to explore new business opportunities without incurring new risks.

1 CASE STUDY:
 Petroleum Company

Petroleum customer solves fraud crisis resulting from new mobile app

PROBLEM:
 When a leading petroleum merchant launched a new mobile application, fraud rates spiked at 32%. This customer faced a critical choice: get fraud under control, or shut down the app and lose out on the new business opportunity.

SOLUTION:
 First Data deployed its Premium offering of the Fraud Detect platform, with a customized machine learning algorithm and an advanced case manager. This product is purpose-built for high-touch, high-risk, immediate fulfillment sales.

BEFORE:

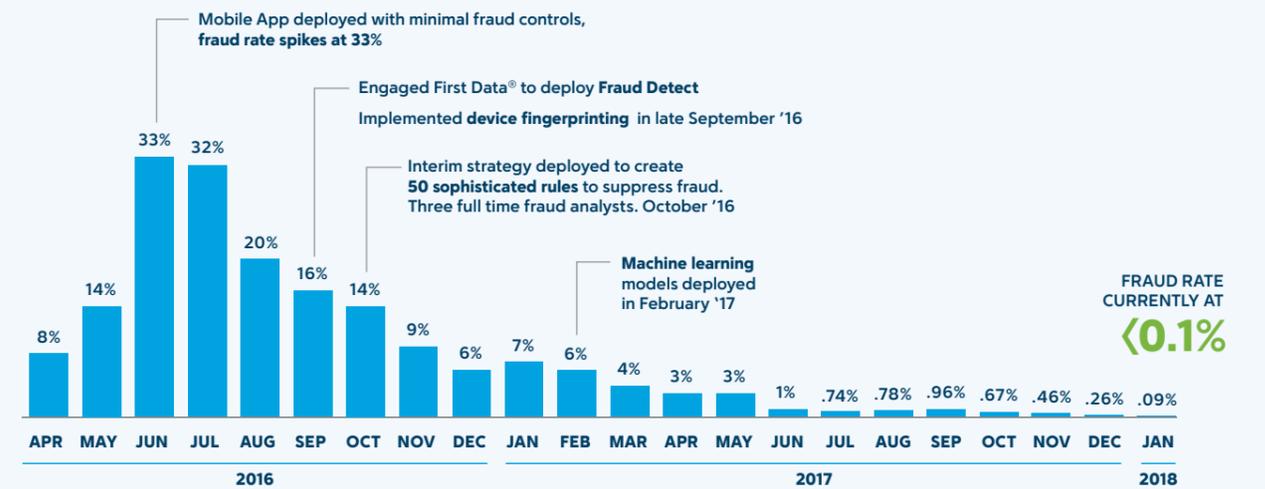


AFTER:



- OVER 80%** Improvement in accurately detecting fraudulent transactions before they happen.
- 150+** Number of fraud risk triggers Fraud Detect analyzes to determine fraud risk score for every transaction.
- <0.5 SECOND** Amount of time for Fraud Detect to deliver a score that enables a merchant to assess risk of fraud.

Use case: **Fraud Detect®** mobile application



Data defined as the aggregate amount of chargebacks by original transaction date divided by total number of transactions for a specific month.



2 CASE STUDY: QSR Company QSR customer upgrades their fraud detection to enable a new mobile application launch

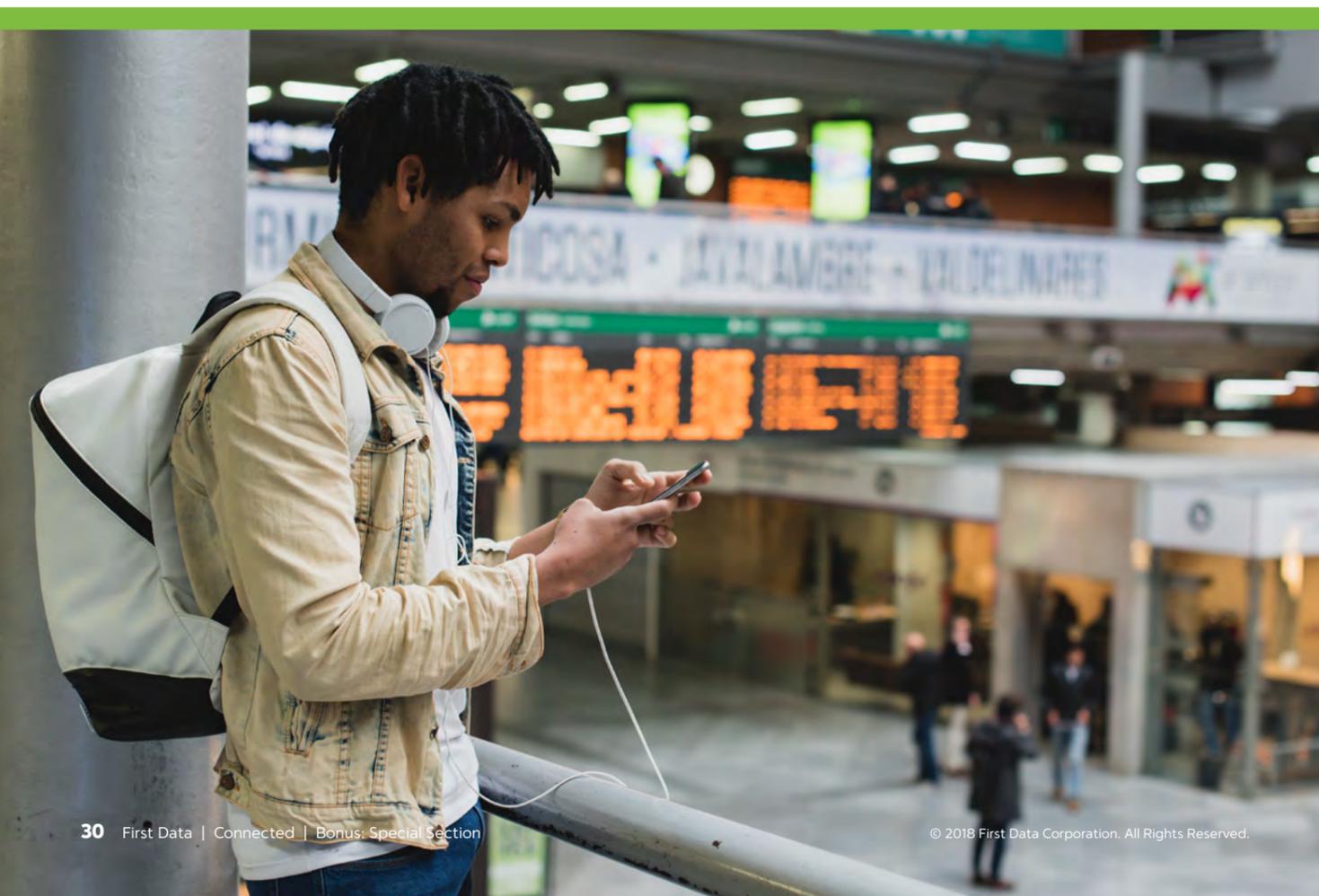
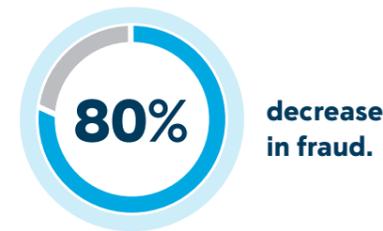
PROBLEM:

When this customer launched a new version of their mobile app, they saw fraud spikes that called for new tools.

SOLUTION:

The Advanced offering of Fraud Detect was implemented with a machine learning QSR-industry model, a rules engine, and Case Manager. First Data also implemented a capability allowing this customer to test the model at different scoring thresholds.

RESULTS:



3 CASE STUDY: QSR Company A flood of fraud followed a new wallet launch

PROBLEM:

A QSR customer launched an auto-reload wallet. Gift card fraud poured in, along with an unusual volume of balance inquiries on stored value cards. Criminals were launching account takeovers, using stolen credentials to access stored value accounts and purchase items fraudulently.

SOLUTION:

A global model was delivered via a First Data gateway and auto-reload host.

RESULTS:



Chapter 04

ACTIONS MERCHANTS CAN TAKE NOW

The half life of innovation is decreasing.

Businesses and fraudsters alike are changing in a new digital economy. For merchants who wait to update their limited, existing technology, things are only going to get worse – not better.

Here are five actions we recommend taking to get ready for a new decade of both risk and opportunity.

1. Have big conversations across your organization

Fraud teams and business teams have never been so linked. In large organizations, it can take a concerted effort to start having meaningful, ongoing conversations about the interconnected effects fraud and new business have on each other. For example, new fraud tools will need to be integrated seamlessly with new products so they don't add friction. And new business explorations will need to account for the explorations of new fraud tools. Merchants should start operationalizing these conversations as soon as they can, so they can transform their mode from reactive to proactive.

2. Have big conversations across fraud teams, too

Even among fraud teams, silos can exist. For example, digital fraud teams and in-store fraud teams will sometimes work in isolation. Cross-channel fraudsters will quickly discover these organizational communication gaps and find ways to outsmart disjointed fraud teams.

3. Begin investing now in machine learning

A hybrid approach to fraud detection, which combines machine learning models and rules, will identify many more fraudulent transactions for a given alarm rate. Merchants who continue to rely on rules alone will be lapped by today's fraudsters.



Rules provide a static approach to dynamic human behavior, because their thresholds cannot change over time. For example, a human fraudster will quickly discover a velocity threshold for a rule that says, "Block when greater than four transactions in a 30 minute period." Also, rules can be limited by yes-or-no threshold ranges, whereas models can recommend a broader range of actions, depending on the merchant's tolerance for risk.

4. Think "fast"

In this changing world, speed is king. Merchants need to prioritize speed as a goal in order to outpace the rapid progression of today's fraudsters. For example, they need to consider how quickly their machine learning system can allow for the training and deployment of new models. And merchants should consider how quickly a vendor can be up and running so they begin stopping new fraud as soon as possible.

5. Make your people better

The most fundamental benefit of machine learning is that it makes humans better. For example, while rules can only make a "yes or no" decision about transactions, machine learning models can provide a range of possible actions based on customized risk thresholds. This arms manual reviewers with all the information they need to make a decision, and leaves the power in their hands. Merchants should seek machine learning systems empowering their fraud teams to make informed decisions. Additionally, merchants should seek systems with easy-to-use human interfaces, like drag and drop dashboards and intuitive case managers.

Conclusion

MEET FRAUD DETECT

First Data's Fraud Detect Solutions is a comprehensive, state-of-the-art fraud prevention solution with real-time fraud scoring and machine learning capabilities.

Designed to reduce a merchant's overall exposure to and cost of card-not-present payments fraud, Fraud Detect provides a highly differentiated value by leveraging leading-edge technology, the company's information assets, and global distribution. Fraud Detect has been developed in partnership with Feedzai, an industry-leading AI technology and fraud science company specializing in real-time, machine-based learning to analyze big data and minimize risk in the financial industry.

Fraud Detect is designed as an offering to a merchant who is exposed to the growing fraud threats in eCommerce and card-not-present channels. The underlying objective is to create a centralized solution meeting the very high expectations of retailers for system accuracy, performance and flexibility.

The success of Fraud Detect is tied to three key business objectives:

- » Reduce potentially fraudulent transactions, thereby reduce chargeback activity.
- » Improve customer satisfaction by reducing false decline rates.
- » Improve the efficiency of resources dedicated to managing at-risk transaction case reviews.

With Fraud Detect, merchants can successfully address issues surrounding fraudulent transactions, reducing the number of flagged orders requiring review and significantly lowering false positive rates. Fraud Detect adapts to newer fraud patterns

with greater agility through a fully integrated modeling and run-time environment.

Unlike traditional rules-based solutions relying on hard-coded rules thresholds, the machine learning platform uses profiles to compute thresholds that are updated with each incoming transaction as it happens. The merchant is afforded access to a single fraud prevention solution, including both rules engine and machine learning, to make payment and operations safe across all channels.



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Fraud Stops Here.

Reduce Risk.
Reduce Cost.
Reduce Fraud.

For one client, we reduced fraud from +30% to 1%.*

Whether it's at the pump, in the car, via their phones, online, or in-store, your business needs solutions to secure your customers' data and prevent fraud, while letting them pay the way they want, frictionlessly. Help protect your business from fraudsters in our fast-changing, mobile, social and digital world using real-time fraud scoring and machine learning with Fraud Detect®.

Think what we can do for you.



Learn more at FirstData.com/frauddetect

*Based on the results of client use case.

Analytics

OVER **THE** LAST FEW YEARS, **BIG DATA** HAS GROWN INTO A LARGE AND FORMIDABLE BEAST. **NEW** ADVANCES IN ARTIFICIAL INTELLIGENCE, MACHINE LEARNING AND PROCESSING POWER ARE LEADING TO THE CREATION OF INNOVATIVE APPLICATIONS THAT USE **BIG DATA** TO TRANSFORM THE WAY WE LIVE, WORK, SHOP AND PLAY.

BRAD RHOADS

[01]

ONE of the biggest users of this new big data is the healthcare industry. For hospitals struggling to contain costs, internal data from patient records, along with external data like weather forecasts and holidays, can be the key to predicting admission rates. This helps them make better operations decisions like predicting staffing needs, as Paris hospitals recently did with the help of machine learning.¹

[02]

In the United States, the National Cancer Institute takes it a step further. It is recommending a patient database that uses big data to predict outcomes of certain treatments.² Rather than creating costly and time-consuming new trials for each procedure, researchers will simply back-reference the data for subjects.³ Much of the credit for the rise of what we'll call Big Healthcare goes to the adoption of Electronic Health Records, now used in 94% of American hospitals.⁴

Now, shifting gears, think about the way we access music. Streaming services like Pandora, Apple Music and Spotify[®] have almost 200 million subscribers worldwide tuning in, spurring billions of neatly digitized data points.⁵ Throw in YouTube and other free services, and you have a huge set of data available to analyze which songs each customer segment likes, including details like how long each listener samples a track before moving on.

The real challenge is to see if data analysis can predict which songs will be hits or misses. But, that would take a long, complicated study by university researchers, in someplace like Antwerp, where soulless algorithms would be applied and XY scatter charts studied to scientifically predict the position of dozens of songs on Billboard's Dance Hit charts.

[03]

Of course, that happened already. And, they got it right 83% of the time. The researchers say they can become even more accurate as they continue to gather more data points.⁶

Pandora, for example, gathers 450 different data points for each song in its catalogue (what it calls the song's genome). It then employs a team of musicologists to make predictions about what songs subscribers will like.⁷

Utilities are also looking to predictive models to improve outputs. The most aggressive studies have been done, unsurprisingly, in California, where the state is developing a smart grid.⁸

Teams at the University of Southern California (USC) are studying, among other things, how to use big data for the optimal integration of renewable energy sources like solar into the existing grid. Their Deep Solar project analyzes weather patterns and usage data to regulate the intake of private solar sources.⁹

The National Aeronautics and Space Administration (NASA), which has been collecting weather data and mission data points for decades, has a different problem. They have too much data, and they have to store all of it, and then figure out how to use it.¹⁰

[04]

Under the Obama administration, NASA created the Big Data Challenge, opening the process up to public universities and research groups. Through this program, collective decisions can be made about keeping what's important, and then on how best to access the data.¹¹ Remember, storing data is costly, as is transmitting it millions of miles across space. The first step is to decide what data to create before ever committing to storage and analyses.

NASA's Big Data Challenge in many ways mirrors what First Data does for businesses. Every day, First Data hears from dozens of businesses who want to know how to make better sense of their transactions. "When we initially approach them with solutions, it's daunting," says Glenn Fodor, who runs First Data's Information and Analytics Solutions division. "They say, 'this is a lot of stuff, what do I do with it?'"

[05]

Fodor says, having massive amounts of data with no plan is counterproductive. He recommends a measured approach, tailored to the individual business owner that answers their most basic needs.

"The challenge is, you have all this data. How do you boil it down to concise, actionable information that helps make business decisions that will allow me to either grow revenue or cut costs?" Fodor explains that you can grow data in many ways. For instance, by selling more stuff, retaining customers better, or by gaining new customers. *That's* when you see the lightbulb come on. We tell them how to do each of those things. That's what our analytic tools accomplish."

Rishi Chhabra helps design and implement those analytic tools for First Data. And, he's done his homework. "I personally visited with hundreds of merchants, just to understand what we could do to delight them. But their questions were more basic, more human. 'Just please tell me how much money I make each day.' It's very hard for them to figure these things out. So, we start there."

[06]

Chhabra's applications are now used by thousands of merchants who turn to First Data's Clover Insights tool to track their sales and learn how they compare with others in their same vertical, or in the same zip code, or in different parts of the country. He's helped everyone from single-owner businesses to the largest employer in the world.

"Transactions don't lie," says Chhabra. "So, we help with forecasts and quarterly reports using real data based on actual purchases, not analysis from outside sources. I'm showing them all purchases in each category, not something extrapolated from a survey, or website clicks."

In the end, big data is only as good as the tools that go with it. That's true if you're helping markets understand how long the fidget-spinner craze will last (turns out, not very long), or where you should open a new franchise without cannibalizing your current customer base. As these tools evolve, we'll continue to see the new big data used in big, new ways – even bigger than predicting the sickest beat in Belgium or the song of the summer in Spain.▼

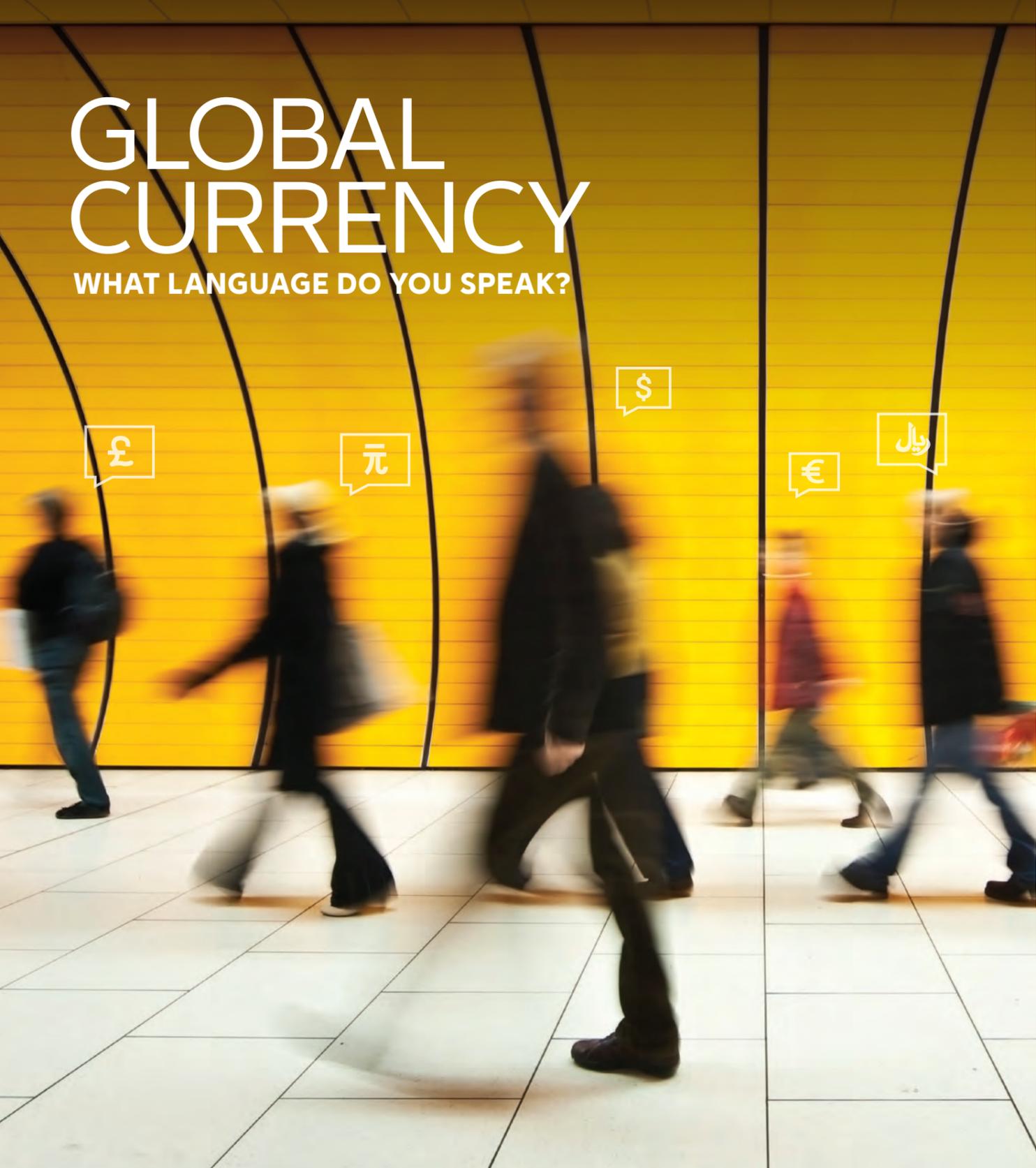
[07]

In This Article:

- #BigData
- #MachineLearning
- #ArtificialIntelligence
- #DataAnalysis
- #BigDataChallenge

GLOBAL CURRENCY

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▼ Data Analytics

FOOD FOR THOUGHT

CAPITALIZING ON THE DATA BEHIND DINING

ANITA J. FINKELSTEIN

Knowing that weekend sales at ice cream shops are higher when it rains isn't just a fun fact to know for Becky Sunseri, owner of Tin Pot Creamery in the Bay Area. It's the kind of insight that enables her to make better staff scheduling decisions, order the right amount of inventory, and create the right marketing strategies. It's the same for any small business owner – understanding what's going on both inside and outside of their business can make, or break, their success.

That's where Clover Insights comes in. An analytical software tool created by First Data®, it's helping thousands of quick service and casual dining restaurants make better business decisions by tracking their data, simplifying it, and presenting it as useful insights.

While big businesses have the resources to collect, analyze, and use their data to help guide operational decisions and marketing strategies, Rishi Chhabra, Vice President of Information & Analytics at First Data, explains that SMBs – especially restaurants – rarely have that same bandwidth. "The owners are too busy making burgers, shakes, cookies, coffee, or whatever it is that they sell, to spend time tracking and analyzing their data."

"Clover Insights is able to track and simplify their sales data for them – and turn it into useful information," explains Chhabra. In addition to providing daily sales data, the software produces charts and graphs that track the data over time, generates heat maps to show merchants where their customers live, and creates weather-based reports to help merchants understand how different conditions impact sales performance.

But, what makes Clover Insights truly unique is that it not only provides merchants with analytics on their own businesses, but also offer insights into how other businesses are doing – a capability Chhabra says is key to helping merchants gauge their success. "By allowing merchants to benchmark themselves against other businesses, they can see how they are doing in comparison to restaurants in their same zip code or in their same vertical."

Clover offers merchants these insights by harnessing the power of First Data's payment processing network. Chhabra points out, "We process billions of transactions from millions of merchants every day. By aggregating this data, we can give merchants a big picture

view of the current business climate and trends without sharing sensitive data on specific customers or individual merchants."

And, having access to all of this data, along with analytics, is incredibly useful for SMBs. Tin Pot Creamery's, Sunseri says Clover Insights enables her to see her data in a way that makes it actionable. "It's very hard as a business owner to spend all that time digging into the data – and not have anxiety over whether I'm analyzing it correctly."

She says Clover Insights helped her select the right spot to open a second shop. Seeing how far customers were traveling to her first store, she selected a location close to those who traveled furthest, grouping them together without cannibalizing her original customer base. "I was able to be confident ... that I wasn't going to be poaching customers from myself."

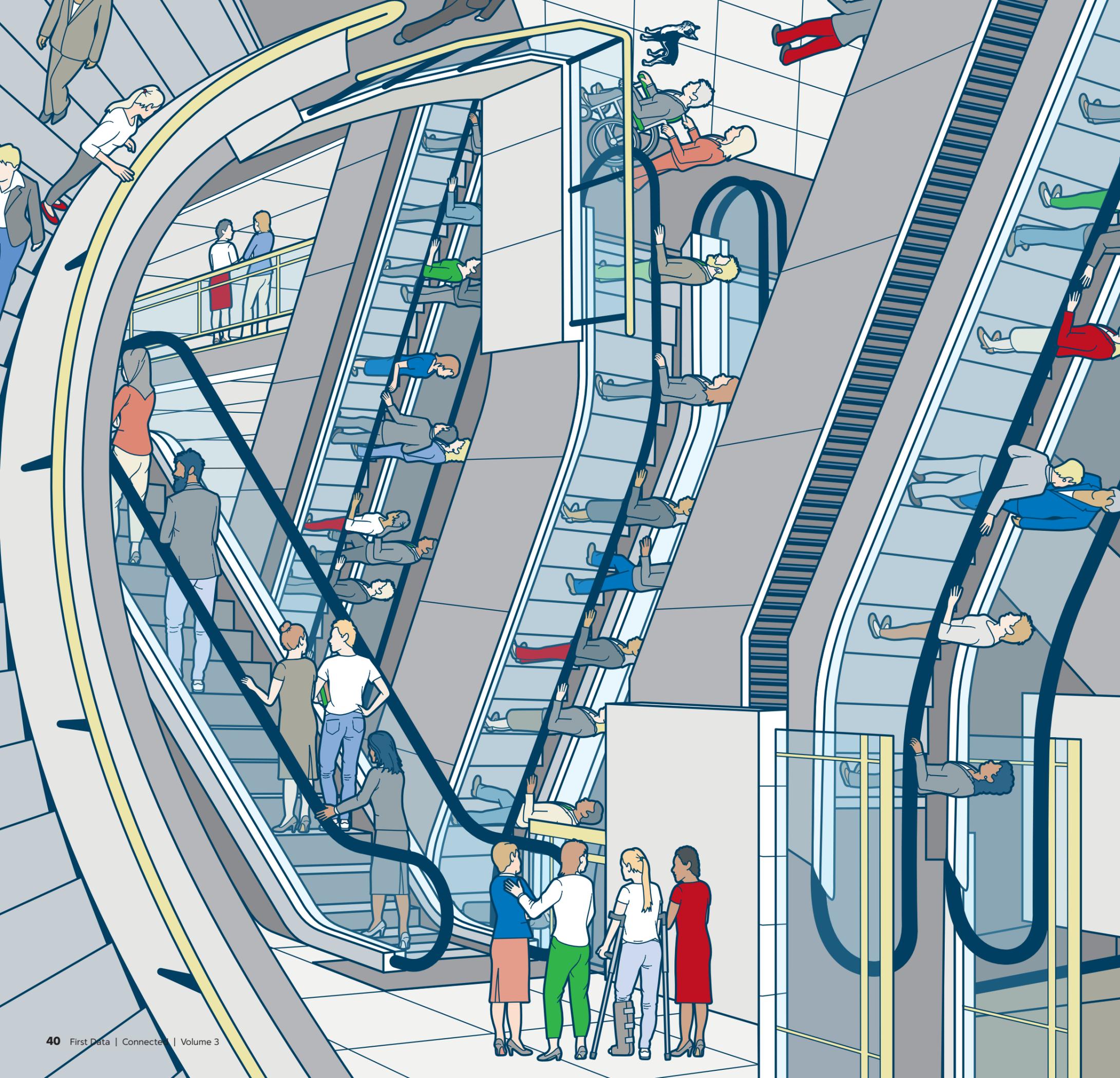
Sunseri also points out that because she can access her data from anywhere, she can make better decisions faster. "I can check from my mobile or at home and really see, in real-time, what's going on with my store. It not only shows me how I am doing by the day, but by the week and month, and that allows me to forecast."

For merchants using the Clover POS solution, Clover Insights can deliver even more granular information. Chhabra explains, "Since restaurants upload their menus into Clover, we can track individual SKUs to provide specific insight on what items sell best and when they sell best, as well as which items are typically purchased together. We even can tell them exactly which items sell best based on the weather."

According to Sunseri, these kinds of insights are exactly what restaurants need to drive growth. "Seeing the stories behind my data is incredibly helpful." This is great to hear because, as Chhabra explains, it's also exactly what First Data was hoping to accomplish when they developed it. "In this world of big data, we wanted to simplify it – and become an advocate for small business." ▼

In This Article:

#DataAnalysis
#MachineLearning
#ArtificialIntelligence
#CompetitiveAnalysis
#CustomerBehavior



EQUALITY PAYS

TACKLING THE PAY GAP IN TECH AND BEYOND

ROBYN WARE + ANITA J. FINKELSTEIN
MARK WATKINSON + JOSEPH SIGILLO

News organizations and women's advocacy groups are looking ahead to the November election and predicting this could be "The Year of the Woman," with a record number of women running for office at all levels of government. And they're not just running – they're winning – along with more people of color and more members of the LGBTQ community.²

Since the 2017 Women's March rippled around the globe, there's been an increased public willingness to engage in discussions about women's issues. But, perhaps lost in this new activism are two unchanging facts: women might be winning seats in government, but they're not gaining seats in the boardroom. And, no matter what rung they are on the corporate ladder, women still get paid less than men for the same work.³



SANDY MOLLETT



Since she joined First Data® three decades ago, Sandy Mollett has seen the corporate culture change first-hand, and she's helped the company grow. Given the opportunity to compete on a more level playing field, Mollett rose through the corporate structure to become one of the highest-ranking owner-associates at First Data. She's now Senior Vice President, Head of Operations and Controls for Network and Security Solutions (NSS). What makes Mollett's story even more remarkable is that for most of her tenure at First Data, she kept her true sexual orientation secret from her fellow employees. "Coming out professionally was extremely difficult for me," Mollett says. "Like so many, I felt coming out would limit my ability to grow and succeed in my career."

But, just about four years ago, there was a change in First Data leadership that brought a new focus on diversity and inclusion, with CEO Frank Bisignano declaring himself the Chief Diversity Officer. Mollett says, "that was just what I needed – my safe path!" She came out and introduced her colleagues to her wife of 26 years. That change, and her newfound openness, helped her become an even stronger leader at work and in the Atlanta community. She founded and co-chaired First Data's Atlanta Diversity and Cultural Council (ERG Steering Committee), is an active member of the Women's Leadership Council and serves as the Atlanta Executive Sponsor of UNITY – First Data's LGBT ERG. And through that connection, Mollett was asked to become the Corporate Relations Board Chair for the Atlanta Gay and Lesbian Chamber of Commerce and took the helm as President of the Chamber in May.

"Companies and CEO's have the power to influence how we do business in our communities – leading by example," says Mollett. "When we band together, companies big and small have the ability to influence corporate diversity in powerful and positive ways."

BRAD RHOADS



The divisions are starkest in the tech industry, which has made headlines recently for being a "boys' club" that shuns gender equality. Women occupied less than a quarter of computer-related jobs as of 2016. Those women who did have jobs were paid just 79% of men's salaries.⁴ But many companies, including First Data®, have been taking active steps to address the problem.

Anthony Marino, First Data's Head of Human Resources, and his team are working to identify issues and close the gender pay gap for good. "I grew up with four older sisters and have two daughters as does our CEO Frank Bisignano, so for us, pay equity is a very personal and passionate issue," he says.

"We're setting course to be one of the first Fortune 500 companies to achieve pay equity," he says, "and not because it's a legislative reason as much as it's just the right thing to do."

Marino outlines four of the most effective strategies and programs First Data has in place to help build and nurture a culture of equality throughout the company.

1 ANALYZE. IDENTIFY. ACT.

For a company with over 24,000 employees, identifying pay inequalities is an ongoing process. Marino's three-step plan involves analyzing employees with similar job titles and comparing their compensation, identifying legitimate gaps, and once confirmed, strategizing plans to close them.

When his team identifies a gap, they look to see if it can be legitimately explained by performance, experience level,

achievement, or time with the company. If not, the real work begins. "It's not as easy as just looking at Person A and Person B. You must analyze all the variables. It takes a considerable amount of time to do this and to make sure we're moving forward in a very thoughtful way."

2 BUILD VERSUS BUY

Recently, First Data shifted its hiring strategy. Rather than going outside the company to "buy" top talent, First Data now looks for existing employees with growth potential to "build" and promote from within. While this new "build" model appeals to all employees, it works especially well to help retain female employees, and it gives them a clear path to advance within the company.

As Marino explains, First Data is finally in a place where it can spend time on growth and development of its own talent. "When I got here, our transformation required many new skills, so 70% of the time we would go to the external market for talent. I'd like to see us flip that. I'd like to grow and promote our own 70% of the time and make outside hires more the exception than the rule."

3 EMPLOYEE RESOURCE GROUPS (ERGs)

Almost five years ago, First Data established employee-led resource groups to create a sense of inclusion for all employees and to support diversity across the entire company. These groups encourage employees to connect with each other and with First Data clients who share common interests based on their gender, race, sexual orientation, disabilities,

military service, and other factors. Groups gather to discuss workplace issues and share stories about their personal lives.

Today, 4,000 employees in 11 locations take part in ERGs. Providing a place where employees can find peers and safely voice their concerns and triumphs not only benefits members, but the whole organization.

4 GENDER-NEUTRAL NEWBORN LEAVE PROGRAMS

With women comprising almost half of First Data's employees, Marino says it was key for the company to have a strong maternity leave program. Last year, he and his team, along with Christine Larsen and Cindy Armine, launched an initiative that offers maternal, paternal, and adoption leave benefits, so all parents, regardless of gender, have time to enjoy their growing families and to develop a better life-work balance. "We did our research and decided if we were going to do it, we're going to do it right. Now, we have one of the best programs out there."

Marino points out that implementing initiatives has enabled First Data to increase employee satisfaction and cut attrition by half. The company has also been recognized for its efforts. First Data was included in Bloomberg's 2018 Gender Equality Index, and designated as one of DiversityInc's "25 Noteworthy Companies." The company also earned a place on the Dave Thomas Foundation's List of "Top 100 Best Adoption-Friendly Workplaces."

Mia Shernoff, Global Head of Marketing for First Data, has witnessed the company's efforts first-hand. "The sign of a great company is when you don't notice gender differences in roles and titles," she says, "We have a culture that champions diversity and equal pay, and it feels like we are good at that."

As the demand for top female talent increases, Marino says he feels companies with programs to make women feel comfortable and valued will rise to the top. "Companies that don't do this won't be able to compete," he says. "For us as a company, we've got to have great programs for women, and an environment where they feel safe, energized, and capable of succeeding."

"Women are already 50% of our workforce. We want them to look at First Data and not only be able to say, 'First Data is a company where I love to work,' and hope that someday their son or daughter will want to follow in their footsteps," Marino says. "To me, that would be the best proof we're doing a great job, having them recommend our workplace to the next generation who will follow in their footsteps."

Shernoff says she gives the same advice to all new employees she meets, particularly women. "Have confidence. New ideas are needed and encouraged in high-tech companies, and diversity is a catalyst for innovation. Be aware of our business and knowledgeable about the role you play. Then, speak up, share your ideas, and contribute."

In This Article:

- #UnchartedWaters
- #EqualPay
- #EmployeeLoyalty
- #TrailBlazer
- #OneFirstData



DANIA RUIZ-PARAMO



When Dania Ruiz-Paramo applied for a job at First Data® straight out of high school, the company gladly enlisted her as a representative in the customer service department, where her ability to speak both English and Spanish was highly coveted. Over the next 20 years, Ruiz-Paramo picked up more highly coveted skills and expertise that propelled her to the position she holds today, Senior Account Executive. Initially, she was tapped to be a customer service representative, but quickly started to work with the Blank Financial Paper group, where she ordered blank official checks and money orders. She's since been given the opportunity to tackle national sales for the entire suite of First Data solutions. She says she understood from the beginning that it was her responsibility to take charge of her career, and that's what led to her success.

"Every boss I have had at First Data prepared me for where I am today," says Ruiz-Paramo. "Any job or role I wanted was there for the taking, so long as I worked hard for it." Ruiz-Paramo says there was great value in growing up with the company – the only place she's ever worked – and that First Data rewarded her with loyalty and opportunities. "Loyalty isn't something you usually see these days. Most companies value external experience. But a few years ago, there was a big shift at First Data culturally, and now we're making the changes we need to make."

She says there's one thing she's glad hasn't changed: "First Data always gives you the chance to earn what you want to earn, if you want it bad enough." Ruiz-Paramo says, "It's the perfect place to thrive if you really want to. But you've got to want it."

BRAD RHOADS



FINTECH & BANK FUSION



THERE ARE CERTAIN THINGS IN LIFE THAT YOU EXPECT TO BE BORING.

For example, rice cakes, waiting rooms, stories about rocks – and certain things that you hope will be boring like visits to the dentist and travel by plane.

Along the boring/non-boring continuum, we want our banks to be steadfast and reliable.

So, really, we kind of want banks to be boring. They control our life savings, mortgages, and college loans – you know, important stuff. So, it's hardly surprising that even during an explosion of Wall Street fintech investments, banks have stuck to what they've historically done best: store, protect, and loan money.

But now, new technologies and a changing consumer environment are forcing banks to act more like fintechs and vice versa. The result is a hazy fusion of the two, with new battle lines and even reluctant cooperation.

Early fintech pioneers like Quicken® and MS Money reimaged the banking experience for first adopters in the emerging digital age (Quicken first came out 34 years ago).¹ They relied on partner banks to make their data available in proprietary formats that could then be manipulated into electronic spreadsheets.² Over the years, these companies added services like electronic billing and online bill pay, but the banks themselves took a little longer.³

Now, changing consumer habits are making it clear to banks, either get with the times or lose business. “It's come into sharp focus that banks need to become

relevant to the consumer,” says Nigel Motyer, who heads up First Data's Direct Acquiring Business in EMEA and sits on the Board of Directors at First Data Europe. “Why did PayPal® become so all-pervasive? Because it was the only method of payment that you had on eBay – and the consumer loved eBay.”

Consumers also love a new way to pay their friends and family, via person-to-person micropayments. Early versions allowed for easy payments via text messages. Now, person-to-person micropayments live on a platform nearly indistinguishable from social media, a no-go zone for banks.⁴

“Banks, traditionally, were very slow to adopt new technology. They were reluctant to jump into these new areas,” says Motyer. “I worked at a bank for many years, and there was a great nervousness about social media. But that's all changing.” Consumers today choose banks for their service, without bias as to whether they're traditional brick-and-mortar or all online.

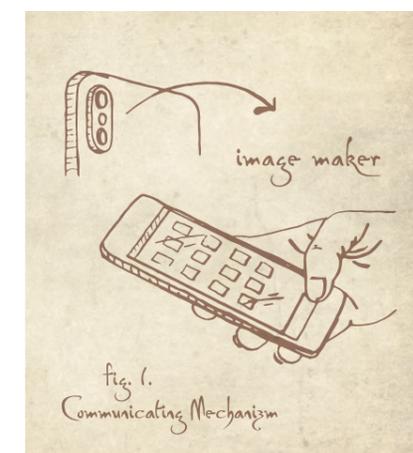
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But that's all changing.

Nigel Motyer

Board of Directors | First Data Europe

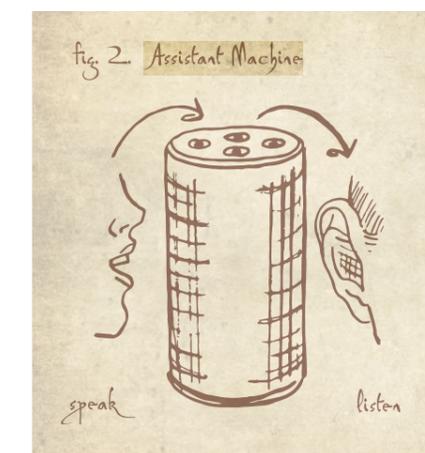


So, banks have stepped up, have started to “shake off” the old stodgy perceptions and are beginning to innovate in response to consumer needs. Recently, major banks collaborated to create their own fintech P2P platform called Zelle®, which allows account holders to transfer cash instantly over apps or online.

Meanwhile, the fintech world is actively seizing ground once monopolized by banks. SoFi® is an online company that provides personal loans, mortgages, and student loan refinancing, mostly targeting Millennials.⁵ GreenSky® offers instant loans for home improvements,⁶ and Avant® offers loans to consumers with low credit scores.⁷

First Data®, a leading fintech and not a bank, is a player in the space as well, giving consumers more options for managing their money with Money Network®, their comprehensive electronic payment delivery solution. A consumer can receive their pay electronically, easily manage finances using the Money Network® Mobile App, and choose from multiple no-cost options for accessing wages.⁸

In Europe, there's been a massive acceleration in fintechs vying for a share of traditional bank services due to new rules that have come into effect. This January, the Revised Payments Services Directive (PSD2) ushered in mandatory open Application Program Interface (API) protocols for banks, allowing third-party vendors to push or pull payments and data directly to and from customer accounts.⁹



“ ”

Banks that embrace open banking will profit from a potential revenue uplift of 20 percent, whereas those failing to do so risk losing 30 percent to disruptive industry players by 2020.

Accenture

With PSD2, and an earlier effort in the U.K. called Open Banking,¹⁰ regulators are seeking to break the monopoly on financial services enjoyed by banks and even major credit card providers such as Mastercard® and Visa® – both of which are based in the U.S. Now, any vendor with at least one EU-registered entity can apply to become a Payment Initiation Service Provider (PISP).

“PISPs have the ability to initiate a payment on behalf of somebody else,” says Motyer. “And, if you register as such, you can open up your checkout payments to allow that person-to-person or peer-to-peer payment. So, you can see bigger merchants like Amazon® becoming a PISP.”

Banks have been inundated with requests from all sorts of merchants wanting to register as PISPs and under strict rules governing their actions, they are obligated to provide the APIs. That’s raising serious concerns among traditional banks in regards to customer security and fraud. Have we mentioned First Data has a suite of best-in-class security and fraud tools for businesses of all sizes? – Yes, shameless plug.

“They’re quite nervous, as you’d suspect,” says Peter O’Halloran,

First Data’s Vice President of International eCommerce. “They’ve got all of these companies coming in with requests, and now with their servers being interconnected, they’re on the lookout for anything nefarious.”

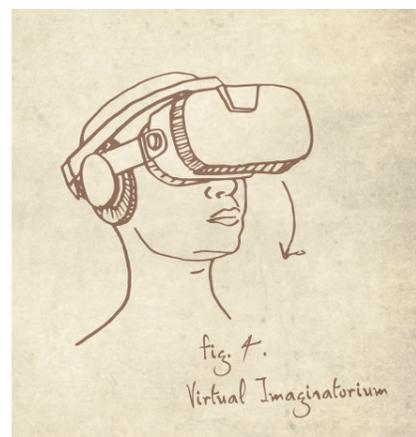
But despite the caution, banks are seeing great incentive to innovate. An Accenture study found “banks that embrace open banking will profit from a potential revenue uplift of 20 percent, whereas those failing to do so risk losing 30 percent to disruptive industry players by 2020.”¹¹

With that much at stake, the number of fintech newcomers is growing. A Capgemini fintech report identified \$110 billion in new capital since 2009. And nearly 90% of the fintechs surveyed, say they want collaborative partnerships with traditional firms.¹²

So, to reassert some control, and to avoid being disintermediated, most of Europe’s largest banks have created their own fintech incubators, from which they can home-grow and implement new technologies. Citi, Barclays and ING have some of the most prolific.¹³ The EU is also working on a draft plan to create a regional fintech incubator with cybersecurity topping the list of its priorities.¹⁴

Based on the Capgemini report, banks believe this hybrid is a winning strategy because customers vastly prefer traditional bank brands over startups. “They are all focused on the idea of – if we have to publish these APIs, what can we do to leverage our own APIs to provide value-added services to our customers?” says O’Halloran.

But, becoming more like fintechs won’t be easy, according to a new report by Accenture and the Partnership Fund of New York. Not only does it confirm that their methodical corporate culture clashes with the entrepreneurial speed of fintechs, but it also shows they are reluctant to toss out decades-old infrastructure and update their technology.¹⁵



However, a separate study commissioned by First Data reveals a silver lining: greater challenges create greater opportunities. The report says the open API concept has applications that will lead to innovations in all areas of banking, and soon, third parties will begin to overlay their advancements in fraud protection, analytics, and even IT.¹⁶

If that’s true, bankers could soon be loosening their ties, unbuttoning that top button, and rockin’ some Aviators. ▾

In This Article:

#ElectronicBanking
#MobilePayments
#P2P
#Innovate
#fintech



THE POWER OF PARTNERSHIPS

BRAD RHOADS GREG GATLIN

The revised Payment Services Directive (PSD2) is a wake-up call for traditional financial institutions. Over the last 30 years, Europe’s banks have plodded along with the same centuries-old business model while financial technology companies (fintechs) have nipped at the crumbs left behind. The tide has turned, and now, those fintechs can match the banks’ massive financial resources. And, more importantly, they have access to the banks’ hard-won customer lists. As a result, a study by PwC shows 82% of financial industry incumbents are now looking to form partnerships in order to maintain their dominance.¹

This is nothing new. When legacy industries are confronted with a rapidly changing technical landscape, forming partnerships makes absolute sense. Companies in the mature stages of their lifecycles have an established customer base, excellent name recognition, access to capital and a wide range of products. What they lack is startups’ ability to be nimble, innovative, lean and disruptive.²

It’s a truism born out over decades of innovation, and one that repeats itself across a range of industries. Just think back to the year 2000 when VCRs became (practically) obsolete. Cheap DVD players were flooding the market, and a startup called TiVo rolled out a new type of Digital Video Recorder (DVR). The disruptive innovation wasn’t the

DVR itself; rather, it was TiVo’s user-interface software that created the look and feel of digital recording, providing the template that companies still emulate today.³

Satellite programmer DirecTV[®] understood the implications immediately, and rather than spending several years and millions of dollars to create its own device, it partnered with TiVo to provide DVRs to its 10 million subscribers.⁴ Simultaneously, the creators of TiVo recognized that they essentially had a firmware product. They understood that their limited manufacturing expertise couldn’t compete against established electronics makers, so TiVo’s founders quickly formed partnerships with established electronics firms Thomson and Samsung to capture more markets.⁵

That partnership blueprint is alive and well in other industries. After redesigning car dashboards to accommodate costly navigation systems, automakers struggled to mirror the user interfaces of the new smartphones. Worse, car buyers began rejecting the added costs of expensive and less intuitive in-car navigation systems in favor of mobile apps.⁶ So, major manufacturers partnered with Apple CarPlay and Android Auto to transport those apps into the head unit.⁷

Bringing this cycle full circle, the space inside the automotive head unit that controls everything from infotainment and navigation

to communications is now at the heart of the latest rush for partners. First Data[®] is bringing together major players across verticals to showcase their desired brands right in the car’s cockpit.

Since First Data already works with companies we all know and love to help create secure and frictionless mobile app payment experiences for customers, we’re bringing them to the party as well. Soon, those same app experiences will be replicated on the console, where menus, rewards cards, and wallets will be preloaded for seamless integration.

In all of these cases, it’s the interface that’s drawing consumers, and it’s the area where legacy firms need the most help. But is that the moral of this story? After all, Apple is one of the biggest companies in the world, its interfaces will continue to redefine how we interact digitally for generations, and yet, Nike and other big players are essentially brand marketers, not manufacturers. Not even Coca-Cola[®] bottles its own soft drinks.⁸ These titans do what they do best, and then bring in strong partners to realize their final vision. ▾

In This Article:

#TideHasTurned
#BrandMarketing
#PSD2

payments everywhere

A GLIMPSE BEHIND THE CURTAIN



LISA SCHOOLCRAFT
WIZARD: GREG HILDEBRANDT
COLLAGE: CHRISTOPHER SANNA

The scene is a classic.

The magical, larger-than-life wizard from “The Wizard of Oz,” is finally exposed by Toto. The tiny dog pulls back a curtain to reveal ... *a human being?* A carnival showman who’s frantically pulling at levers, spinning dials and barking into a microphone, all to keep up the illusion of being “great and powerful.” Hopelessly, he bellows, “pay no attention to that man behind the curtain!”

His reasoning is simple. If Dorothy and her friends are jolted away from their user experience to contemplate how it’s all done, they’ll grow disenchanted – and all the magic will dissolve into simple mechanics.

Today, in the “real world” of commerce, merchants are seeking solutions that can deliver that same magic to customers. One way to do it is by making the actual payment process frictionless – something that is completed securely in the background by using customer account information on file.

“Marketplaces and gig economy merchants want payments to disappear into the background, not be an additional feature,” says Nandan Sheth, Senior Vice President of Debit Solutions at First Data®.

Ride-sharing companies, with the help of First Data, were some of the first to pioneer this type of frictionless commerce as a way to engage customers. Travelers simply summon a car with their app, accept the cost, and ride to their destination. When they get there, they hop out without stopping to pay the driver – no awkward moment searching for a few bucks to leave as the tip.

The drivers also love it, because they get paid immediately upon request. The app automatically charges the total fare to the passenger’s card, which is processed via First Data’s dynamic routing engine through the lowest-cost payment network. At any point, the driver can instantly deposit their profits into their bank account via their debit card. The rideshare companies residual is also automatically calculated and retained.¹ There’s no back-office processing, no timecards, and no employee checks to cut – just easy automatic payments.

Processing via the lowest-cost network is an added benefit itself. “Gig economy merchants love our highly differentiated marketplace solution, as it helps them optimize payments from the rider to the driver,” Sheth says. “When a rider’s payment comes through from any debit card, First Data’s dynamic routing engine determines the most cost-effective route and processes the payment in real-time. For drivers it means instant cash flow, so they can buy gas, food, or pay for repairs. It’s a seamless experience for the merchants, drivers, and riders. We make everything happen behind the curtain.”

“ ”

We make everything happen behind the curtain.

Nandan Sheth
SVP | Debit Solutions | First Data

Today, countless other gig-economy companies like Rover, a dog-walking service; TaskRabbit, a personal concierge service; and Airbnb, a peer-to-peer home rental marketplace are using hidden payments as a competitive advantage.

“Brick-and-mortar merchants are also looking for ways to keep point-of-sale (POS) payments out of sight”, says Mark Schulze, Co-founder of Clover and Vice President of Business Development at First Data. To deliver this type of experience, Clover has teamed up with Bypass Mobile which allows customers to pay for food and other concessions right from their seats at more than 300 sports and entertainment venues. Customers can then skip the checkout line and retrieve their food from a special pick up counter to cut down their time away

Digital Commerce

from the action. And, Clover continues to innovate, with products like Clover Flex, a mobile POS which can be carried straight to stadium seats or restaurant tables without the need for customers to stand in lines, and Clover Go, a smartphone-compatible POS that can take any type of payment and wirelessly connects to desktop POS. “Merchants are rethinking how they do business,” Schulze says, “with these devices, they can check people out in the aisles.”

Booker, which can be found in the Clover App Market, is an app that allows salons and spas to schedule appointments, manage customers, send appointment reminders and yes, handle payments. Accessible to both the salon and customers, the app keeps payment information on file to make customer checkout faster and easier, and allows customers to make advanced deposits and pay for products online.

In the medical sphere, there’s CareCloud, which enables patients to check in, fill out paperwork, and pay without stopping at the front desk.

Next up on the horizon, says Schulze, will be technology that enables consumers to use smartphone facial-recognition apps to pay for merchandise and services in the store without having to hit a checkout lane. These innovations are already in trial runs, he says, pointing out that Google is testing facial-recognition payments in the Bay Area.

First Data is working hard behind the scenes to make all of these payment solutions a reality, pulling the levers, and spinning the dials to make the user experience – as Dorothy might say – magical. ▽

In This Article:

#UserExperience
#SeamlessPayments
#CloverFlex
#Booker
#CloverGo



GEN Z RISING

**THE COMING CONSUMER STORM:
LINKSTERS' IMPACT ON RETAIL,
COMMERCE, AND PAYMENTS**

GENERATIONAL MARKETING IS NOT A NEW CONCEPT.

BUT FOR SOME REASON OVER THE PAST 30 YEARS,

each time a new age group is identified, merchants and advertisers begin a frantic scramble to figure out what they want and how to connect with them. Before there were Millennials there was Gen X, and before that, there were the Baby Boomers – each group with a unique set of expectations, experiences, generational history, lifestyles, values, and demographics that influence their buying behaviors.¹

And now, just as marketers were beginning to feel they'd mastered marketing to Millennials, along came Generation Z (or Gen-Z), which includes anyone aged 2 to 19. Once *Women's Wear Daily* proclaimed this group to be "the next big retail disruptor," the frenzy began all over again. Then, the research group J. Walter Thompson Intelligence proclaimed them to be "Millennials on steroids." No wonder retailers are freaking out.²

But, according to generational expert David Stillman, that characterization is misleading and even offensive to members of Gen-Z, who are distinctly different from Millennials. Gen-Z'ers are aware of the negative stereotypes tossed around about their predecessors, and they're working hard to blaze a different path. Retailers who treat them the same are bound for failure.³

"It's beneficial for companies to reach out to them today because they're already making demands on household spending," says Meagan Johnson, a professional speaker who calls herself a generational humorist. Johnson chronicled the rise of Gen-Z in her book, *Generations, Inc.*

The first generation in history that has had easy access to the Internet, smartphones, apps and social media since birth, technology heavily influences how they approach each other and the marketplace. And she points out the Linksters, as she likes to call them, already control \$600 billion in U.S. sales. "Some older Millennials remember using dial-up modems to get online, and Wi-Fi wasn't available everywhere," Johnson says. "Linksters though, have been linked-in from day one."

Linksters value authenticity above all else. Johnson says, "This generation wants to know, 'how is this product like me?'" She explains they are resistant to buying something that has a heavy brand image. "They want clothes that look like what real teens are wearing, and images in advertising that look just like them."

Rather than expensive designer brands, Linksters are more likely to buy Target's Art Class line, which is designed for and marketed to Linksters. "The kids in the photos are wearing practical clothes – leggings and printed hoodies that are colorful and fun," Johnson says. "And, the kids in the ads look like kids. They don't look like 20-year-olds modeling clothes for teens."⁴

Because they've never known an unconnected world, they automatically gravitate to social media and look to trusted influencers to help them form their opinions. "YouTube is the sweet spot for them, where they go to get information about brands," says Johnson. "When companies latch on to social media influencers to sell products, Linksters are very suspicious. They'll go to YouTube to find out if those influencers are being paid to sell the brand."

OF COURSE, GEN-Z'S NOTORIOUSLY FLITTING ATTENTION SPANS ARE OFTEN PERCEIVED NEGATIVELY AND BLAMED ON THEIR OBSESSION WITH SOCIAL MEDIA, BUT RESEARCH HAS FOUND DIFFERENTLY.

Of course, Gen-Z's notoriously flitting attention spans are often perceived negatively and blamed on their obsession with social media, but research has found differently.⁵ A company that's now part of Accenture studied the issue and found that it's actually because they've developed highly evolved "filters" that give them the ability to quickly sort through limitless sources of information.⁶ Having grown up in a completely connected environment, their brains discard useless data quickly, and "trending" topics become more important, especially when trusted sources point the way.

As a result, they have no time or appetite for browsing. They prefer to go directly to store websites to confirm what they want is available, and then

head directly to the store. Two-thirds of them say they frequent stores more if they're able to check ahead of time.⁷

"Physical stores are responding by becoming smaller, but also more profitable per square foot," says Glenn Fodor, who heads up Competitive Intelligence at First Data®. "By using algorithms based on online purchases in the local area, stores can tailor their stock with only the products in the highest demand. Customers

can then order online and pick up at the store the same day."

To accommodate Gen-Z's need for speed, Amazon says it's using real-time customer shopping data to keep shelves stocked at its Amazon Go location. The Seattle experiment has just completed several months of tests for cashier-less shopping – something nearly 40% of Gen-Z'ers say they would like.⁸

Both Walmart^{®7} and Sam's Club^{®8} have also introduced "Scan & Go" smartphone apps that allow customers to scan each item in their cart and pay through their digital wallet, avoiding checkout lines.

So, yes, Linksters, like all of us, want to save time. But to truly understand the Gen-Z mindset, retailers must

understand that they also want to "save the world."

They are much more socially active, more accepting of gender equality and LGBTQ rights, and much more open to all points of view than generations past.⁹

A perfect example of the way Linksters are brushing aside the "seen-and-not-heard" notions of their elders can be found with the students at Parkland High School. Politicians and other observers were amazed when the students responded to their school shooting with astonishing clarity and cause. They used their mastery of social media to organize, protest, and, yes, *be heard*.¹⁰

By recognizing this as a key differentiator, merchants can look for opportunities to tailor their Gen-Z marketing to tap into their passion to do good, and to right what's wrong.¹¹

Like any other generation, they're just navigating the world they live in. Merchants who embrace their need for authenticity, their dedication to social media and their social activism, will easily attract their attention and, as a result, capitalize on their market value. ▾

In This Article:

#Realism
#AlwaysOn
#GeoTargeting
#SocialActivism
#GenerationGap
#GenZ

Financial Literacy in the GIG ECONOMY

One sunny Saturday afternoon last fall, an authoritative rap echoed from my front door. It was the two-knuckled knock of a 30-something who's done this hundreds of times before. As the door swung open, a scruffy-bearded dad lowered a bike helmet to his side and smiled, "Hey! Jerry from TaskRabbit. You got some furniture that needs assembling?"

Jerry is part of a growing throng of workers with side hustles in the Gig Economy. Estimates show a third of the U.S. workforce,¹ and 162 million people in the U.S. and Europe combined² perform independent work, including part-time "contractor" jobs for platform-businesses like TaskRabbit, Uber, Lyft, and Upwork.³ On this gig, Jerry will make \$30 putting together a Swedish-inspired bookshelf, as I hurry off to catch a flight. "Need me to walk your dog, too?" he asks. "Just ten bucks since I'm already here."

Researchers studying the growth of the side hustle offer theories on why so many younger people, particularly Millennials, are working second jobs or even have primary jobs that are free from the constraints of stale offices, bad bosses, and set hours.

Some speculate that since Millennials crave new experiences, they're naturally prone to hop from one job to the next. That idea lost traction after a Pew Research Center study showed job-hopping is just as pervasive among all generations at a certain age.⁴

The actual reasons are much more complex. And, span everything from the difficult job market Millennials encountered when they entered the workforce, which forced them to become more comfortable with part-time work, to the explosion of the online platforms that make these opportunities possible, to the desire of Gen Y'ers to blaze their own path out of the mainstream.⁵

Whatever the reason, either by choice or necessity, residents of the gig-o-sphere face financial challenges that are much different from 9-to-5'ers. They have no access to company benefits like 401(k) plans or subsidized health insurance⁶ and their income can fluctuate wildly as gigs pour in and then dry up just as suddenly. In addition, new U.S. tax laws are making it harder for this group to collectively bargain and be recognized as full-time employees.⁷ Some states are

working to reverse this trend, but they face strong headwinds from gig employers.⁸

Several proposals are pending to help independent workers. One idea is to tax all gig earnings a small amount, maybe 5%, with the money going into a general account that would be portable from job to job. But gig companies fear the "portable earnings" plan would open them up to more claims from workers wanting full benefits.⁹

Meanwhile, financial firms are working to educate contractors on financial literacy. A recent study shows that more than half of side hustlers use the money they earn to pay for basic expenses, like food or housing. That makes fluctuations in earnings even more frightening, as workers worry there won't be enough to make ends meet.

Residents of the gigosphere face financial challenges much different from 9-to-5'ers.

Financial apps like First Data's Money Network[®] are taking some of the guesswork out of the process. It offers a Piggy Bank feature to help people set aside a portion of their earnings every day to cover big-ticket items. First Data's Innovation Lab is now in the field, actively collaborating with independent contractors to create additional new products and services that can better meet their unique needs.

One thing is certain. If Jerry, my "bokhylla-assembler" was any example of the side hustlers' hustle, it's hard to believe the Gig Economy is really dying a slow death. And, yes, he even got that extra ten bucks for walking my dog. After all, he was already there. ▼

BRAD RHOADS

In This Article:

- #SideHustle
- #SafetyNet
- #FinancialPeace
- #RainyDayFund
- #FinancialLiteracy



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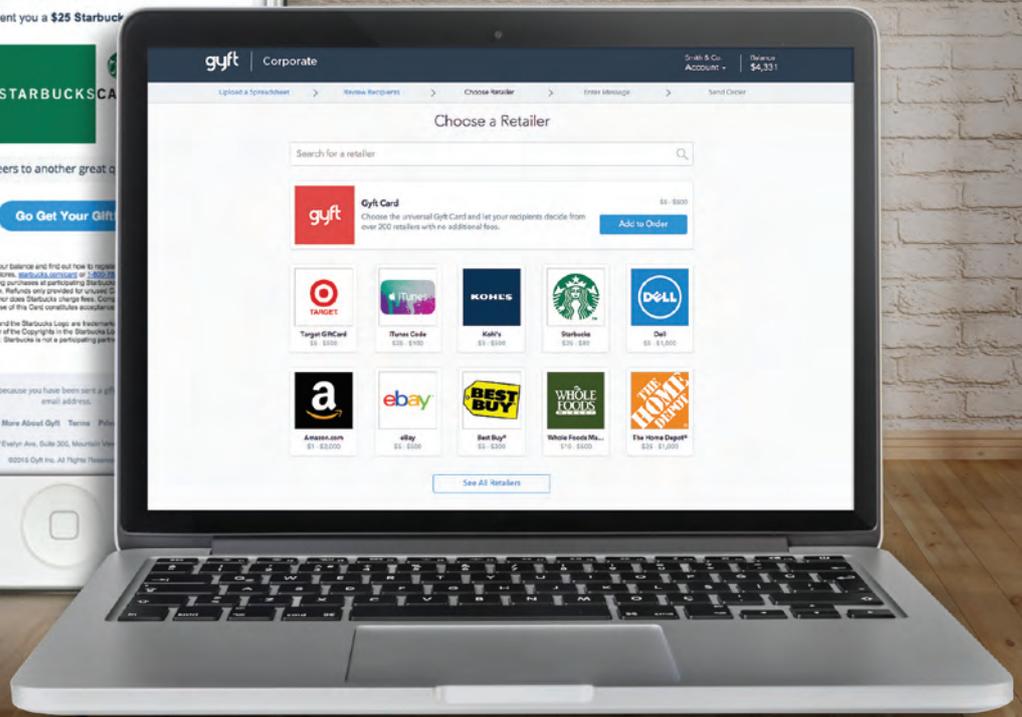
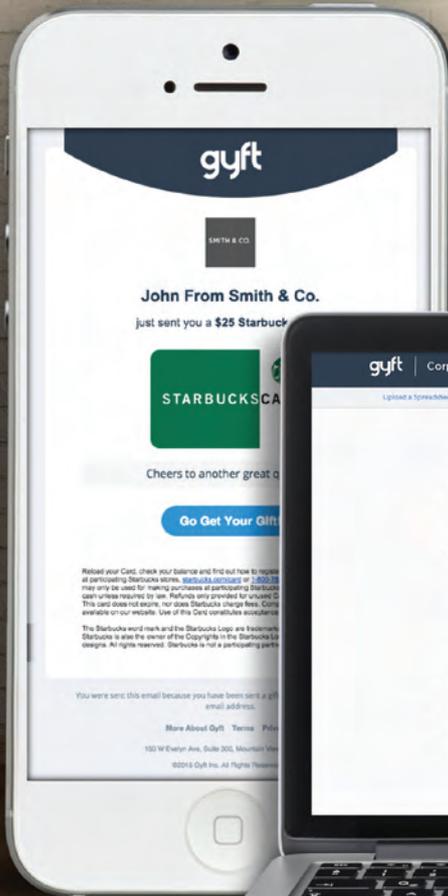
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