StoryTech® at CES®

Driving the Relationship Between Storytelling & Technology

CES® 2017, January 5–8 - www.ces.tech

Tech Grows Up…

Every year, CES assembles over 175,000 attendees over 2 million square feet of convention floor to witness the best and brightest new technology as well as the tech trends that will shape our world in the year to come. Whether seeking the sexiest new screens or a washer that orders detergent when it runs out or a car that drives itself, today's businesses must understand the technology and the desires that are driving the consumer economy.

This year the show floor will include 3800 exhibitors, and 600 start-ups from all over the world with products, experiences and thought-leaders that are leading the way for our tech-fueled world. Consumer Technology Association™ (CTA) memberships now include companies in the PC industry, telecom and communications industries and, most recently, most of the automakers. Companies in the health-care industry that are also targeting consumers with digital representations of their products and services are now members of CTA.

About StoryTech:

Keeping up with the pace of change in technology + media is fundamental toward understanding evolving consumer behavior and tastes. This is the foundation of the work we do for storytellers—whether they be brands, advertising agencies, networks, studios, or new-model content companies.

From there, StoryTech partners closely with clients to develop these learnings into meaningful business strategies, test-and-learn roadmaps, and managed technology trials.

Don't miss the next wave of tech in your industry! Reach out post-CES to begin planning your curated *Seek to Solve Workshop*.

Each year prior to the show, StoryTech works with CTA the to identify their insights on the latest tech, and then combines that with our understanding of audiences and consumer trends. The results are indeed the marriage of story + technology. Here are the top trends of 2017:

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Trend: IOT HITS ADOLESCENCE

Now that the wearables craze has leveled off (which not even Apple could resuscitate), we're moving past "quantified self" and into "qualified self." This means we're demanding more usable and insightful information from the things we put on our bodies, and increasingly from the things we put in our homes. Just because there's no universal platform yet or open-source 'big data' feed, doesn't mean wheels aren't furiously turning in the background.

The Internet of Things Becomes the Internet of Getting Things Done

Gartner, Inc. forecasts that 6.4 billion connected things will be in use worldwide in 2016[1], and 5.5 million new things will get connected to network infrastructure each day.[2]

Consumers are rapidly reaching the upper limit of the number of gadgets (no matter how fashionable) they are willing to wear, and question whether there is any true value to the massive amounts of data being collected every day. Data collection isn't enough. Consumers want to know how will that data be used for meaningful decision-making and positive action.

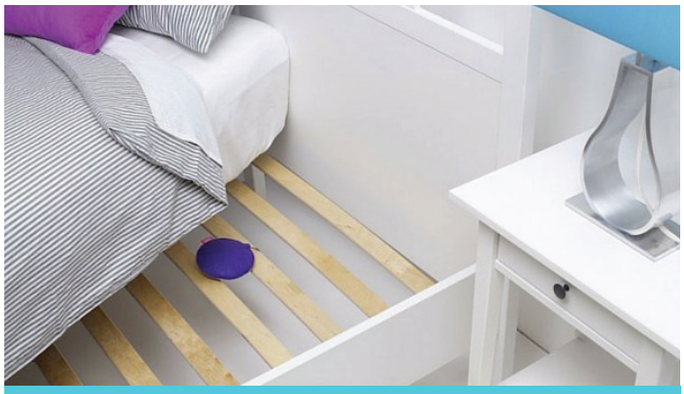
Getting Things Done at Home… Virtual Assistants

Over 15 % of US households now own smart home devices.[3] From refrigerators that order groceries, washers that order detergents, and app controlled lighting and home entertainment hubs, consumers can now talk to their devices, order a cup of coffee or douse the lights with simple voice commands, but increasingly find that their devices speak to one another and the factory where they were made. Devices are beginning to fix themselves—noting when routine servicing is required, ordering the necessary parts and even making the repairs. The increased use of AI and machine learning means more personalization and solutions that map to your life and style. And smart plugs (like **iDevices**) mean that even basic analog devices like lamps and electric teakettles can easily be integrated into home automation systems like **Apple HomeKit**.[4]

iDevices

As the IoT (connected devices) consumer market continues to grow, we are seeing a new category of Wi-Fi routers starting to emerge that focus on design and ease of use. Companies like On **Hub**, **Eero**, **Luma** and **Starry** offer Wi-Fi routers focused on helping you manage all the connected devices that you bring in your home.

thegadgetflow.com



The **Lully Sleep Guardian**—a small Bluetooth device that slips under your child's mattress—learns when your baby is likely to experience night terrors and rouses her with a gentle vibrating pulse just before the night terrors begin. [5]

Getting Things Done–Securely

On October 21, 2016, an army of millions of connected smart devices were hacked leading to a Distributed Denial of Service (DDoS) attack that brought the Internet to its knees. Domain Name Service (DNS) provider Dyn had severe outages of some of its most well known clients including Twitter, Airbnb, Reddit, Netflix, SoundCloud, Spotify, and Shopify[6]. The hackers used the default passwords on these devices (that the owners hadn't bothered to change) to create a botnet—a collection of millions of infected computers that are used to launch an attack. Unless a major effort is made to change the architecture of IoT devices to do away with well-known default passwords, we can expect to see this sort of attack (and much worse) in the future.[7]

Getting Things Done—Sans Cell Phone

While the mobile phone remains the most important device in the IoT, consumers are seeking new ways to communicate with their homes, their devices and their digital worlds. To the delight of Star Trek fans everywhere, voice commands are growing ever more popular. Amazon's voice assistant Alexa stormed CES and homes everywhere last year leading to a revolution in the idea of what a virtual assistant could be. Part shopping cart, part living encyclopedia, these virtual assistants are fast becoming the discovery center for music, movie information and every day details like weather and news. Google has their 'Home' version, and we expect to see these 'assistants' embedded in a number of other devices as well.

1 - "Google's New Products Look Like The Stuff Around Your House On Purpose" popsci.com, 10/4/2016
2 - "Preparing for a World of 50 Billion Connected Things" CIO.com, 6/22/2016
3 - CES.tech
4 - "How It Works" idevicesinc.com
5 - "Could this Device Cure Your Child's Night Terrors?" CBSNews.com 4/18/2016
6 - "Massive DDoS Attack Against Dyn DNS Service Knocks Popular Sites Offline" HackerNews.com, 10/21/2016
7 - "10 Things to Know About the October 21 IoT DDoS Attacks" 10/24/2016

Beyond the Smartwatch with Connected Clothing

Advances in sensor technology and smart fabrics are ushering in a new age of wearable tech. Companies like **Loomla** have created a type of soft flexible circuit using thread and ink to create flexible fabric capabilities like capacitive touch and haptic feedback. Soon you won't need to use special gloves to touch your **iPhone** in winter. **Google** has a new conductive yarn which combines metallic alloys with natural and synthetic yarns and can be woven directly into fabrics to create touch and gesture sensitive areas in garments and on furniture. These circuits can then connect to other digital devices such as smart phones and other devices.[8]

Levi Strauss

Forbes

High Couture High Tech—The Chanel Show in Paris featured a backdrop of giant data storage units and was opened via two models dressed as robots. The models walked the runway sporting glasses powered by the Intel Curie module. This data was then visualized and projected onto the walls in order to market the awareness and management of stress in our daily lives.[9]

8 - Google.com/jacquard
9 - "Loomia's Madison Maxey Shows Us the Building Blocks of Future Smart Clothing" Wareable.com, 10/27/2016

Ads You Can Feel

Touch is not just feeling. It is emotions,
it is movement, it is human nature.
It captivates, it evokes, it excites.

Experience the power of touch with TouchSense® Ads.

immersion. immersion.com/touch-ads

Trend: BLURRED LINES

In the current age of virtual, augmented and mixed reality, internet news, influencer reviews and live video, the lines among the who, what and where of content are becoming increasingly blurred. The new televisions with Ultra HD feature sport images so real that you're tempted to catch the ball yourself. And with special visors, content immerses and surrounds you with crystal clear video and object-oriented audio. It's also increasingly unclear where your content even comes from. Is that news piece you're watching from a major network, a cable provider, or did some guy on Facebook just make it up?

Is That TV?

4K and HDR are no longer pipe dreams of the future. The new Ultra HD sets with 4K resolution and High Dynamic Range (HDR) are shipping from your local big box store right now. (4K refers to the approximately 4,000 pixels of horizontal resolution, and HDR or High Dynamic Range refers to the amount of contrast found in an image as well as the way color is represented.) The net result is a picture so real it looks more like looking out a window than looking at a screen.

Another important milestone of new content format rollouts is the dramatically increased content available in UHD (4K, HDR) formats. Ultra HD Blu-Ray players are available for under $200 along with hundreds of movies. **Amazon**, **Netflix** and other major streaming services are also leading the way with the release of UHD titles.

Content (Loyalty) is King and TV is DEAD (Long Live TV)

While millennials continue to cut cable cords at an ever-increasing rate, television content viewership continues to flourish. Today's younger viewers still manage to rack up an astonishing 6 hours of content viewing per day. These viewers are simply watching content on their own terms via their mobile phones and tablets.

All of the major platforms including **Amazon**, **Netflix** and **Hulu** continue to invest in quality programming that they can control on their platforms. In the current entertainment landscape, viewers are unlikely to care or may not even know what platform is hosting their favorite show; they just want to watch it. And research has shown that up and coming generations are spending a frustrating amount of time looking for things to watch (32 minutes per day). Over half want simplified search as well as recommendations (and are willing to pay extra for these services).[10] In 2017, we can expect the OTT sites to reward these hungry content consumers with new search-friendly and curated interfaces.

54 percent of millennials (and 17 percent of baby boomers) have at some point given up on a show or "show dumped" when they had to wait for another episode to come out or access to the show became too difficult or uncertain.

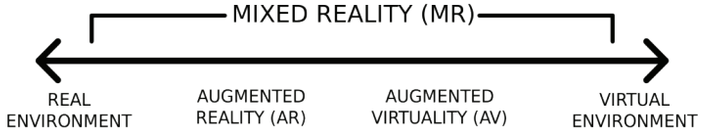
– Tivo Research[10]

Naturally, advertisers and brand managers are eager to connect with these cord-cutting fiercely on-demand viewing millennials. Organizations like **Canoe Ventures**, an advertising technology company, provides software and services to national TV programming networks, MVPDs and additional premium video platforms to help with scaling the somewhat chaotic on-demand viewing systems--integrating products from a variety of players. TV is in fact, not dead.

The 10-Year TV Programmers , Thought Progression...

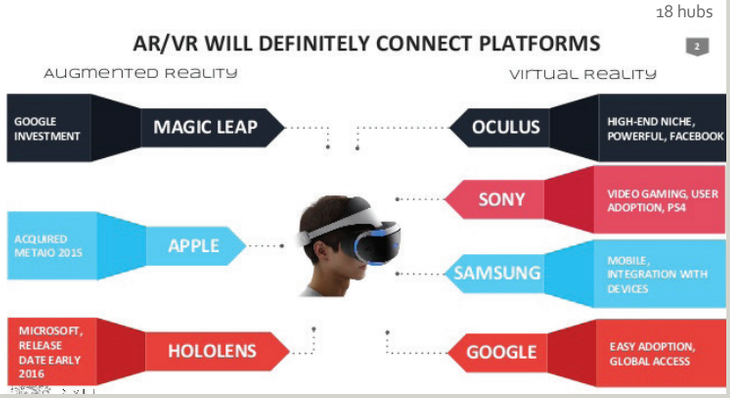
- First, "Linear is not falling"
- Then, "it was Nielsen's fault"
- Next, "What's this On-Demand stuff?"
- Now, "Oh, It's not that bad, and here to stay"

– Chris Pizzurro, Head of Business Development, Sales & Marketing Canoe Ventures



The Reality Spectrum

Both Augmented and Virtual Reality are big business. With VR hardware, software and content sales skyrocketing, 2016 was estimated to be Virtual Reality's first billion-dollar year.[11] With the widespread release of several AR-capable headsets and phones, 2017 is expected to be the big breakout year for Augmented Reality as well. Both technologies are expected to continue their meteoric rise over the next decade, with worldwide AR and VR revenues expected to top 120 billion by 2020.[12]



10 - "Networks Beware: 54 Percent of Millennials have 'Show Dumped' When Content Becomes too Difficult to Access" The Drum, 10/19/2016
11 - "Technology, Media & Telecommunications Predictions 2016" Deloitte
12 - "Augmented/Virtual Reality to Hit $150 Billion Disrupting Mobile by 2020" Digi-Capital.com, 4/2015

AR and VR lie along a spectrum of immersive technologies. Augmented Reality encompasses "heads up" display technology as you might see in **Google Glass** or **Sony's Smartglasses**, Mixed Reality incorporates fictional elements seamlessly into your real-world environment as you might see in a **Magic Leap** or **Microsoft HoloLens** headset, and Virtual Reality immerses the viewer fully into another world either real or imagined which does not incorporate objects or people in the viewer's real world view. These definitions are neither hard nor fast but are actually fluid and continually changing.

It's finally here! **Facebook** unveiled the latest expansion to live broadcasting. Dubbed Live 360, it marries their existing livestreaming features to pre-recorded 360-degree videos.

LOOK AHEAD: By 2020 over a billion people will regularly access AR and VR Content.[13]

The "Next Pokémon Go"

In 2016, one little creature drove augmented reality firmly into the limelight with the record-breaking release of Pokémon Go. The app uses geotracking and the device's camera and digitally superimposes fictional creatures over whatever real-life scenery is displayed on the screen. With over 500 million downloads in the second half of 2016, and publicity driving Nintendo to record highs on the stock market, the discussions in boardrooms throughout the country are likely to center around developing a Pokémon Go-type app for other products and brands. According to TechCrunch, Super Mario Run toped 5 million downloads on day one, but half of the reviewers only awarded one star.

IDC predicts, augmented and virtual reality will continue to grow in importance estimating that 30% of consumer-facing companies in the Forbes Global 2000 will experiment with the technology as part of their marketing mix for 2017.[14]

Studies indicate the rise in advertising spend utilizing immersive technologies is driven by a desire for more than positive publicity. Immersive experiences build brand awareness and drive ad effectiveness. In a recent study commissioned by Teads and Immersion (a company that builds touch experiences with haptics, the use of touch feedback in digital content) an html haptic movie trailer for Jason Bourne resulted in a 75% increase in ad awareness over text ad formats and a 24% increase over video without haptics.[15]

Snap Inc.

Those Snappy Specs!

Google Glass arrived with plenty of hype and left with a fizzle—leaving many to wonder if the iGlasses market was DOA. But again, a snappy new upstart is getting everyone talking about AR (even though it technically isn't). Social media platform **Snap** (formerly known as Snapchat) has started selling some spiffy video grabbing sunglasses called Spectacles. The fashion-forward video glasses have plenty of viral hooks about them. The glasses record video in a new round format with a nifty lighted indicator near the left and right eye cameras that let people know when they are in the Spectacles spotlight. The glasses are hard to find (only available in Minion-shaped yellow kiosks known as Snapbots.) But at only $130, at least the price is accessible.[16]

It's All on Our Heads—Or is It?

Perhaps the most exciting AR equipment releases aren't headsets at all, but rather new AR-enabled smart phones. In late 2016, Lenovo released its Phab 2 Pro Android phone which features 3 cameras for true 3D rendering and Google's Tango AR technology.[17] With a price tag under $500, this may truly be the device that brings AR to the masses. Apple CEO Tim Cook has spent the entirety of 2016 dropping tantalizing hints about future product offerings in the AR space, so it's likely we'll see something big from Apple in this space this year.[18]

simforhealth.com

SimforHealth creates and markets customized solutions for digital simulation teaching aimed at medical students and health professionals. They offer patient management via virtual consultations relying on a range of methods and technologies including 3D real-time simulators, serious games, and virtual, mixed or augmented reality.

13 - "IDC "Annual Year Ahead Tech" Investors.com
14 - "Advertising Marketing to Invade Virtual and Augmented Reality in 2017" Investors.com, 11/2/2016
15 - "Research Now" Immersion.com, 11/2016
16 - "Snap Specs Snapchat" Wired.com, 9/2016
17 - Lenovo.com
18 - "Tim Cook Says Augmented Reality Will Be Bigger Than Virtual Reality" The Verge, 9/14/2016

Trend: WORKING THE CROWD

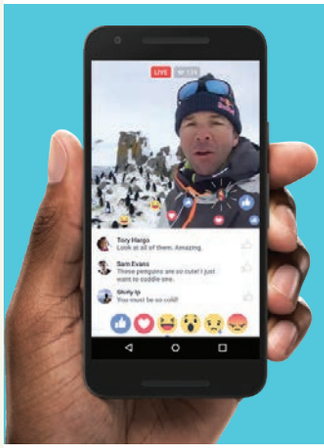
If the presidential election taught us anything, it's that people are much better at telling us what they want than we are at telling them, because of the power of the crowd. Millennials are more likely to watch a live debate on a social platform and believe a news story that was forwarded to them by their friends than access content in more traditional and solitary ways. So as crowdfunding surpasses angel funding and **blockchain** creates access and collaboration, perhaps 2017 will be the year the crowd takes flight.

Brought to you LIVE By a Crowd Near You

User Generated Content is bigger than ever, and now, it's coming to you live. 2016 was a pivotal year for all things live. **YouTube Live** launched and viewings of live video grew by 80%.[19] **Twitter's Periscope** users have created over 100 million broadcasts, with 2 million users coming online every day to stream 350,000 hours of video every 24 hours. And of course, **Facebook Live** was launched to all **US iPhone** users in January of 2016 with 500 million people now watching Facebook videos every day.[20]

Facebook has reportedly paid out a record-breaking $50 million plus to publishers, celebrities and influencers to create content for their on demand as well as live platforms, and tweaking its algorithm to give prominence to live content.

Facebook



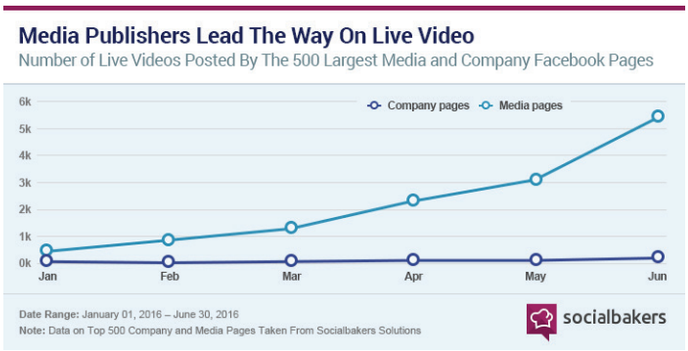
"We're making a small update to News Feed so that Facebook Live videos are more likely to appear higher in News Feed when those videos are actually live, compared to after they are no longer live."

–Vibhi Kant
Facebook Product Manager[21]

The Surprise of Live

Suburban mom Candace Payne was tickled pink with the new Chewbacca face mask she bought at a **Kohl's** clearance sale. Giggling with delight, she broadcast on Facebook live to her friends and family. In just 5 days, the video racked up over 140 million views. That means that 140 million people heard someone talk about what Kohl's sells and imply how easy it was to return items. Needless to say, Kohl's was delighted and arranged for her to broadcast live shortly afterwards as she and her family received a veritable truckload of Star Wars themed merchandise.[22] These are the moments that change the game for advertisers.

socialbakers

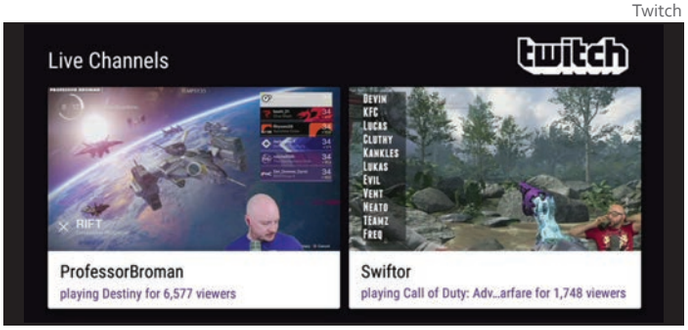


Catching the (Video) Game on TV —E-sports Mature

Once considered the purview of ubergamers and supergeeks, live videogame viewing is very big business with early market leader **Twitch** (purchased by **Amazon** for a cool $970 million) boasting 9.7 million daily active users with over 2 million users actively streaming per month.

Twitch has streamed 241,441,823,059 total minutes (or 459,366 years!) with the average user watching over 100 minutes per day.[23]

Twitch



E-sports is a lucrative business, not just for the platforms, but also for the players. Popular video game streamer Jeffrey Shih recently told Forbes magazine that the best gamers can raise six figures based on their livestreams alone.[24]

In late 2015, **YouTube** jumped on the E-sports bandwagon with **YouTube Gaming**.[25] Other key players in the market include **Azubu**, **Hitbox** and **Dingit**. In mid 2016, **Facebook** announced they are working with **Blizzard** (maker of the smash hit game World of Warcraft) to build social login and Facebook Live video streaming into their games. These features coupled with Facebook's huge budget and enormous reach are likely to give each of its competitors a run for their money over the coming months.[26]

19 - "YouTube Live Video Views are on the Rise as Google Takes on Facebook and Snapchat" Business Insider, 8/30/2016
20 - "Facebook Says Video Is Huge-100-Million-Hours-Per-Day Huge" Recode, 1/27/2016
21 - "Facebook Gives Live Videos a News Feed Boost" Social Media Today, 3/1/2016
22 - "Chewbacca Mask Video Smashes Facebook Record" TubularInsights
23 - twitch.com
24 - "Online Streaming and Professional Gaming is A $300,000 Career Choice" Forbes, 4/21/2014
25 - "Twitch Ups Its Game to Compete with YouTube Gaming" Fortune.com, 2/26/2016
26 - "Facebook Live attacks Twitch with Game Streaming" TechCrunch, 6/6/2016

Influencers Join the Crowd

To capture the power of the crowd, **Snapchat** has rolled out some new group features. The popular messenging app is used on a daily basis by 41% of 18-year-old to 34-year-old people in the U.S., and averages 150 million daily active users. That's quite the crowd.

And the newest social platform on the block, **Musical.ly**, allows users to create 15-minute streaming music videos that people can comment on and make their own. Every day, millions of people use musical.ly as an outlet to express themselves through singing, dancing, comedy, and lip-syncing. And they play off each other's work. The app has amassed over 80 million registered users, and the company (formed in 2014) is now valued at over $500 million.[27]

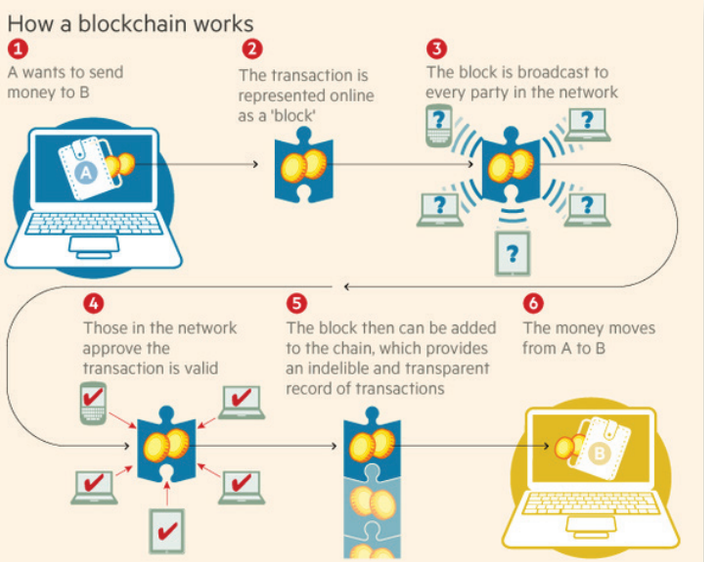
Crowdfunding Goes Main Stream

2016 was a big year for crowdfunding. The US removed some of the final bans regulating crowdfunded investments and kicked off "regulation crowdfunding" (aka Title III of the JOBS Act) which allows any American small business or startup to raise up to $1 million from friends, family, and followers on equity and debt crowdfunding platforms registered with the Securities and Exchange Commission.[28] World Bank estimates that crowdfunding will hit the $90 billion mark by 2020 and could reach those levels as early as 2017 if growth continues at the current clip.[29]

The New Kid on the Blockchain

Another phenomenon that will benefit the crowd is **blockchain** technology. Blockchain is a distributed computing technology which is more secure and more transparent than typical computing systems where data is all stored in one place. Blockchain is a key component of **Bitcoin**—an alternative money system also known as cryptocurrency. Cryptocurrencies like Bitcoin simplify the process by providing a single, 'crowd-consensus' currency available worldwide. And Blockchain technology is particularly useful in a digital world where buyers and sellers hope to deal directly with one another. Blockchain can also revolutionize the world of contract negotiation where contracts can be built collaboratively and transparently (where all changes can be seen by all parties). This form of contract can revolutionize entire industries—particularly in gaming and entertainment where customers and creators could directly interact.[30]

Like crowdfunding, blockchain is of primary importance to millennials. Trust and loyalty are hard to come by in this group who came of age during the recent financial crisis, and see corporate America as driven purely by profit. Blockchain presents an opportunity for companies to engage with millennials in a way that provides transparency and trust.[30]



"There is an inclusive principle according to which economy works better when it works for everyone, which means creating platforms for distributed capitalism, not just a "redistributed" one."

– Don Tapscott and Alex Tapscott
argue in their book Blockchain Revolution[30]

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27 - "10 Stats Marketers Need to Know About Mobile App, MUSICAL.LY" Mediakix
28 - "'Regulation Crowdfunding' isn't the Mess Opponents Predicted" Venturebeat.com, 7/31/2016
29 - "Crowdfunding 2016 Predictions: The Next Real Estate Boom" Crowd101.com, 12/2016
30 - "Blockchain & Millennials: A Relationship of Trust and Transparency?" Crowd Valley, 11/15/2016

Trend: THE UPS AND DOWNS OF AUTONOMY

The next time a child makes that yanking motion at a big rig, bracing for its horn to blare, they may be confronted with something even more startling–a truck driven by nobody. Enter the world of autonomy where vehicles drive themselves, and robots and all sorts of automated systems become the norm.

Machines that Run Themselves

Autonomous technology has reached its adolescence. For machines to run autonomously, they need to see what is around them (sensor technology), they need to think about what to do (computing technology and cloud technology), they need to act (motors and servos) and they need to learn (AI and deep learning). Massive improvements in each of these areas are fueling a renaissance in machines that run independently.

Autonomous products are everywhere—even at your desk. In fact your new autonomous tool might even be your desk. **Robotbase** has created a desk that moves from sitting to standing automatically based on your past activities. What's more your desk connects to a host of voice-activated digital assistants and software like **Nest** (just tell your desk when you're too hot or too cold), or spotify (so you can pick some awesome tunes to listen to on the desk-installed USB speaker).[31]

Cars That Drive Themselves

Perhaps the most dramatic shift in the autonomous industry and most visible in the auto industry is the move towards autonomous cars. No longer a mere pipe dream, autonomous vehicles are on their way. Elon Musk, business magnate, investor, engineer, and inventor, recently stated that all future Tesla cars will be fully capable of driving themselves. The next line of Tesla cars featuring a host of cameras and sensors is expected by late 2017.[32]

cloudfront

"I really consider autonomous driving a solved problem. I think we are probably less than two years away."
– Elon Musk[33]

The level of interest in autonomous driving is not surprising given the obvious benefits. Nobody wants to spend time staring out blearily at bumper to bumper traffic. And the possible cost savings from autonomous vehicles is enormous.

The automotive market is undergoing a major shift. Navigant Research predicts there will be 4.5 million fully-autonomous vehicles in production by 2025.

Autonomous vehicles could represent a cost savings of $1.3 trillion in the US alone from fuel savings, accident avoidance, and greater productivity and fuel savings caused by spending less time in traffic congestion.[34]

One of the key questions likely to follow autonomous car manufacturers is how to resolve the potential moral dilemmas that may arise in an emergency. If something or somebody is going to be hit, how does the car choose which? A group at MIT recently developed a simulation game which addresses this situation.[35]

Intel formally established a new internal organization called the Automated Driving Group (ADG) dedicated solely to the development of solutions for autonomous vehicles, and announced plans to invest $250 million in the creation of various technologies that enable autonomous driving.[36]

Drones that Deliver

2017 is unlikely to deliver the flying car we've always hoped for. But it is likely to be making flying deliveries of nearly everything else you can think of. Despite the dire warnings of the FAA and other flight regulatory bodies, it's no longer a question of if **Amazon** will deliver packages with drones, but when. Delivery fees are a big issue for Amazon. By some estimates, Amazon spends over $4 per package. Couple that with the customer's insatiable hunger for the two-day or even two-hour delivery model, and Amazon's intense interest in drone deliveries becomes clear. Drone deliveries are likely to take off first in mid-density suburban areas where the infrastructure for one or two hour package delivery service is less pronounced than in the city centers.[37]

Finn Yonkers

In what is perhaps the greatest confluence of technology buzz words in a single product, we have the **Fly-Mode**, a 3D-printed autonomous vehicle with an onboard scout drone. The concept vehicle recently won the Essence Autonomy Challenge sponsored by Local Motors, creator of 3D-printed cars like the **Strati** and **Mouser Electronics**.[38]

31 - "Smart Standing Desk: World's Best Sit-to-Stand Office Desk" Robotbase
32 - "Elon Musk Says Every New Tesla Can Drive Itself" Wired, 10/19/2016
33 - "Two Years Until Self-driving Cars are on the Road – is Elon Musk Right?" The Guardian, 6/2016
34 - Predictions for US Market, Morgan Stanley Research 2014.
35 - "MIT Game Asks Who Driverless Cars Should Kill" PopSci.com, 10/4/2016
36 - "Intel Forms New Group for Autonomous Vehicles and Annoucnes 250m Investment" AnAndTech, 11/30/2016
37 - "Free Shipping Crowds Out Small Retailers" WSJ.com, April 2016
38- "A 3D-Printed Autonomous Car with an Onboard Scout Drone" PopSci.com, 10/5/2016

Delivering Instant Gratification —The "On-Demanding" Economy

Whether you're talking about package delivering drones or **Amazon** factory robots that autonomously pull items for delivery off warehouse shelves or a fleet of autonomously driven taxis—what is consistently delivered to U.S. consumers is instant gratification. Consumers are an impatient lot, and since the early days of Fedex, companies have understood that the spoils often go to the swift. In today's economy, customers don't even expect to pay a premium for instant service, they simply expect it as a matter of course. Naturally, a key element of this "On-Demanding" economy is that customers are less interested in owning expensive equipment like cars or even bicycles and more interested in having access to this equipment only where and at the moment they need it.

Zack Kanter

In December anyone in San Francisco who hails an **UberX** could find themselves in the backseat of a luxury, self-driving **Volvo** XC90, complete with leather interior, spinning LIDAR sensor, and a trunk full of computing power.

Your Robot Taxi Driver

You may have to wait until 2020 or beyond before you can sit back and relax and let your car drive itself. However, you may be relaxing in the back seat behind a robot taxi or on demand car service driver far sooner. In fact, if you hail an **Uber** in Pittsburgh, you may have the option to ride in a self-driving car right now. Uber currently has a fleet of 14 Ford Fusions packed with radar, cameras and other sensing equipment. While this is a tiny percent of Uber's overall fleet, they are learning, and their commitment to driverless ride hailing vehicles is quite clear.[39] Ford has also projected it will have a level four (sans steering wheel and brake pedals) high-capacity ride sharing or ride hailing vehicle available by 2021.[40]

More Mobility in a Better World

In an autonomously driving and ridesharing world, the benefits will reach every layer of society. Autonomous driving and ridesharing will result in lower energy consumption, lower pollution, fewer accidents and less traffic density in urban areas. Aside from providing a cleaner and safer world, these two technologies will mean that mobility will be newly available to some of those most likely to be left out of our current mobile economy. Autonomous driving will drive down labor costs and make on-demand transportation accessible to a wider range of incomes and classes.[41] Better mobility offers access to a wide range of better jobs and means that less leisure time is spent by all simply getting from here to there.

"The Time has come to no longer think of these services—ridesharing, carsharing, bikesharing, scooter-sharing—discretely but as a package of mobility services."

– Dr. Susan Shaeen,
Transportation Sustainability Research Center,
UC Berkeley[42]

39- "Uber Starts Self-driving Car Pickups in Pittsburgh" Techcrunch,9/14/20016
40 - "Autonomy, Mobility and Connectivity: The 2017 Outlook" CTS 2017
41 - "I Think, I See, I Drive, I Learn" KMPG.com
42 - "Emerging Technology Trends in Transportation" Enotrans, 2/2016

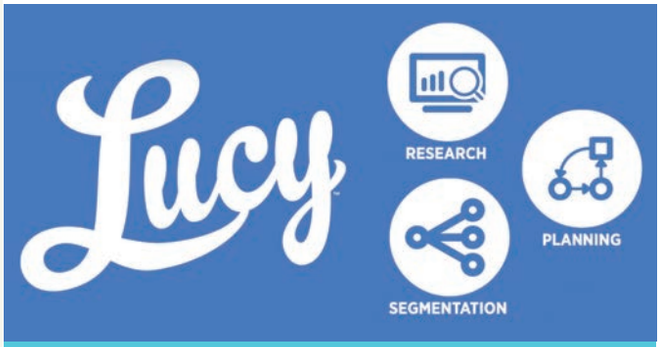
Trend: THE RISE OF SKYNET – PART 1 – Human 2.0

It's estimated that true Artificial Intelligence (AI) on par with human intelligence is just two decades away. If this sounds like science fiction to you, consider that despite fake news and bad bots, we're increasingly relying on machine learning to do everything from playing Jeopardy to managing inventory to guiding surgeries worldwide (Just ask IBM's Watson). At the same time, we're using machines to help build faster, smarter and better humans. Once again the line between man and machine is increasingly blurred.

AI in Business

Artificial intelligence is poised to provide a lot of solutions for business with developers working on integrating AI into everyday consumer machines and devices, like cars and refrigerators. For business, AI promises to reduce bulk and repetitive actions (like filtering sales leads, managing customer interactions and pursuing shopping cart abandonment) to get to quicker results for sales and marketing. While bots have gotten a bad rap (it's so much less satisfying to fight with an AI bot when you're unhappy with a service provider than with a real person) there's more to it than that. AI is an extension of pervasive computing, or always available connectivity.

Pervasive computing, also called ubiquitous computing, is the growing trend of embedding computational capability (generally in the form of microprocessors) into everyday objects to make them effectively communicate and perform useful tasks in a way that minimizes the end user's need to interact.[43]



MEET LUCY.

In May of this year, Equals 3 announced the release of **Lucy**, a cloud-based cognitive companion powered by **IBM**'s well known AI platform, Watson. Built for Fortune 1000 marketers and advertising/media agencies, Lucy's groundbreaking technology taps the cognitive computing power of Watson to address common challenges across research, segmentation and media planning. A master strategist, Lucy can inform everything from in-depth market analysis and audience segmentation to media mix modeling and targeted channel planning.[44]

AI at Home

Amazon has been on top of AI for years, like Google has with translate[45], which has officially been converted to an AI based system. For Amazon it was about helping to predict what people might like to read and ultimately create efficiencies in the fulfillment centers. And now of course, its all about Alexa, it's AI-powered virtual and ultimately very personal assistant. As Apple and other Personal Virtual Assistant (PVA) providers open their APIs, more businesses, brands and providers wlll connect with consumers in their homes and through these discovery engines.[46]

China, **Microsoft** and **Intel** announced a partnership for Project Evo, where the two companies will work jointly on security, AI (Cortana) and mixed reality.[47]

The Robot in the Living Room

According to a recent study by Juniper research, one in ten American households will own a consumer robot by 2020.[48] And chances are good that robot will look more like Rosie or Robie than a rolling vacuum cleaner. The new home robots will recognize consumers when they return home, patrol the house when consumers are away and help keep track of, care for and entertain the kids.

And moving forward, there will be a new class of robots cheap and powerful enough to mow the lawn, deliver your groceries and walk the dog without even asking for a tip.

farmbot.io

Farmbot is 'humanity's first' open source farming machine. FarmBot brings precision farming to individuals with a DIY, open source agriculture robot that is completely adaptable to any garden situation.

43 - " The Essential Guide, 'IoT Analytics Guide: Understanding Internet of Things Data" Internetofthingsagenda.com
44- "Equals 3 Introduces IBM Watson-Powered Lucy™ Solution for Marketers" Marketwire, 5/16/216
45 - "The Great AI Awakening" The New York Times, 12/14/2016
46 - "Why You Shouldn't Let a Personal Virtual Assistant Represent Your Brand" Customer Think, 12/2016
47 - "Microsoft, Intel Partner on Project Evo to Bolster Efforts in AI, Security, Mixed Reality" TechRepublic.com,12/8/2016
48 - "1 in 10 Americans to have Robots in Home by 2020" CNBC, 12/16/2015

AI in the Community

Biometrics, another form of AI, is poised to strongly impact public safety. Fingerprint and facial recognition are in use in over 40 countries for security and border control. And just like in an episode of CSI, facial recognition helps authorities track down the bad guys and solve crimes. Biometrics are also impacting financial technology or fintech.[49] **Mastercard** uses biometrics to handle online payments—replacing passwords with photographed selfies and scanned fingerprints.[50]

Robots are Big Business

Venture funding for robotics has grown to $922.7 million in 2015, up from $341.3 million in 2014, according to estimates by Hizook, a news site for academics and professionals in the robotics industry. A recent International Data Corporation report projects that the world will spend $135.4 billion on robotics and related services in 2019, up from $71 billion in 2015

Why now? The reason is simple: timing. Advancements in the robotics industry that have been building for decades are converging. And trends in the broader technology industry—such as the growing library of open source software, advances in gaming systems, increasingly powerful and energy-efficient processors, and cheap sensors have helped to accelerate the trajectory of "smart" autonomous machines.[51]

AI Fun Facts

1. AI bots will power 85% of customer service interactions by 2020.
2. Amazon, Alphabet, IBM, and Microsoft will host 60% of AI platforms.
3. Robots may be smarter than humans within a couple of decades.
4. Gartner estimates that six billion connected "things" will be actively requesting support from AI platforms by 2018.[52]

Human 2.0—Augmented Humanity

While human scientists work diligently to create machines that think like humans, they are also creating more and more machines to make humans work better, faster and stronger. 3D-printers can now create human tissue–an important stepping stone in replicating 3D printed human organs for transplantation.[53] New developments in human power include prosthetic limbs that touch, robotic arms that allow people to easliy lift hundreds of pounds and even jet packs that allow people to fly.[54] And there is a wave of wearables, devices and athletic wear that are designed specifically to enhance your training, and help you achieve

a new level of perfection—whatever your particular physical goal. This is not about 'quantifiable self' where we are receive and review data about our physical activities but rather the devices and data are literally used to enhance the human experience.

Sensoria

Sensoria is integrating its Sensoria Core Technology with Vivobarefoot (a leading producer of natural running shoes) to create a new pressure-sensing natural running shoe that detects crucial core metrics such as cadence, foot landing and forces exerted by a runner.

Fake News and the Death of the Fact

The impact of AI on this year's U.S. presidential election has been tremendous, and undoubtedly there are many news stories to come that will explore what really happened. Political campaigns worldwide now use bots (software developed to automatically do tasks online) as a means for 'enhancing' or inflating social media traffic. Recent research from Oxford University revealed that nearly one third of pro-Trump and one fifth of pro-Clinton tweets were produced by automated accounts.[55]

A new report by the executive office of the President aims to help set the stage for a world where robots powered by AI may take your current job but we can all benefit from that. "Artificial Intelligence, Automation and the Economy" from the Executive Office of the President, advocates investment in research and development as well as educational achievement to prepare today's workers for the loss of automated task-oriented jobs.[56]

"If care is taken to responsibly maximize its development, AI will make important, positive contributions to aggregate productivity growth, and advances in AI technology hold incredible potential to help the United States stay on the cutting edge of innovation."[56]

49 - "Public Safety Gets a Boost with AI" MISAsia, 12/6/2016
50 - "Mastercard Brings Selfies and Fingerprints to Online Payment Security" Business Reporter, 12/4/2016
51 - "The Age of Autonomous Robots is Upon Us" Fortune.com, 3/29/2016
52 - "9 Artificial Intelligence Stats That Will Blow You Away" fool.com, 12/2016
53 - "26 Disruptive Tech Trends for 2016-2018, @BrianSolis, 2/23/2016
54 - "10 Futuristic Technology That May Come True Very Soon" Hongkiat.com
55 -"Election Bots" The Atlantic, November 2016
56 - "White House Plan Cushion Blow When Robots Take Your Job" The Fiscal Times, 12/2/2016

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