

StoryTech[®] at CES[®]

Driving the Relationship Between Storytelling & Technology



CES[®] 2016, January 6–9, 2016 – CESweb.org

Each year, CES provides the strongest evidence that we are all connected through technology—to our devices, the services we use, the brands we buy, and to each other. And all of these connections are generating data that, like it or not, has become the foundation for our interactions: from doctors to movie stars to our refrigerator in the kitchen.

Each year prior to the show, **StoryTech** works with the **Consumer Technology Association[™]** 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 2016:

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 StoryTech Activation Program.

Meta-Trend: MOVING BEYOND THE BROWSER

By 2020, the number of Internet-connected devices is expected to reach a staggering 50 billion—with 6.1 billion smartphone users, a quarter of a billion connected cars and 10.2 million units of smart clothing¹. This marks the shift away from the Internet being defined by clicking in a browser on your PC or phone, and more towards a pervasive connectivity that reaches throughout our homes, vehicles, offices, malls, hospitals, and practically wherever else we interact.

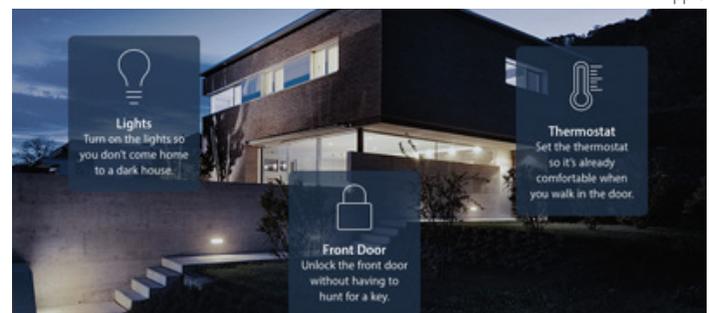
Connected Home to Connected Lifestyle

The biggest issue currently facing the Internet of Things (IoT) is not the “what” but the “how”: on which platform will all of this tech connect and synch up? Just to list several of the competing standards we have **Wink, Insteon, Luton, SmartThings** and **WeMo**. Even Staples is getting into the act.

But out of the mix, four big players seem to have the upper hand at connecting the dots: **Apple** (HomeKit), **Google** (Brillo), **Intel** (IoTivity), and **Qualcomm** (AllJoyn). And among these, you can guess which two will likely emerge in the head-to-head faceoff.²

Apple’s system uses the proprietary **HomeKit Accessory Protocol (HAP)**—meaning that for a third-party device to connect, it will have to be **“Made For iOS” (MFi)**. **Google’s Brillo**, on the other hand, is already powering early IoT breakthroughs like the **Nest Thermostat**, and we can expect to see a broad range of device manufacturers making use of this open standard.

IoT is increasingly also finding its way onto the city grid, where the impact will be significantly more consequential than our coffeemaker automatically reordering our beans. Indeed, when “smart cities” are fully realized, we’ll see not just the more efficient use of resources and improved communication, but a fundamental shift in our habits and expectations.



Apple

IoT Analytics – Quantifying the connected world

Q2/2015

Company	Category	Overall rank ¹	Scores				
Ranking vs. Q1/15			2	3	4	5	
1 IBM	Software	64%	3k	5.4k	40k	1.4k	
2 Google	Several	61%	1.6k	14.5k	46k	84	
3 Intel	Semiconductor	60%	4k	5.6k	13k	1k	
4 Microsoft	Software	43%	2.2k	3.0k	21k	732	
5 Cisco	Hardware	38%	1.6	2.1k	12k	1k	
6 Apple	Consumer prod.	34%	355	6.6k	34k	112	
7 SAP	Software.	18%	800	1.3k	10k	320	
8 Oracle	Software	17%	720	0.4k	10k	374	
9 Samsung	Consumer prod.	17%	655	2.9k	12k	76	
10 Hewlett-Packard	Software	17%	355	0.3k	20k	190	
11 SAP	M2M	16%	190	0.6k	6k	592	
12 Amazon.com	Software	16%	735	0.5k	17k	66	
13 GE	Ind. equipment	16%	535	0.7k	8k	382	
14 Qualcomm	Semiconductor	14%	290	1.1k	4k	416	
15 AT&T	M2M	11%	320	<0.1k	6k	298	
16 Orange	M2M	10%	70	0.3k	14k	109	
17 BlackBerry	Software	10%	290	0.1k	12k	91	
18 Facebook	Software	10%	890	0.4k	6k*	10	
19 Intel	Hardware	10%	140	0.9k	10k	104	
20 Verizon	M2M	10%	235	0.7k	10k	98	

1. The highest ranking company in each aspect received a rating of 100%, with all other receiving a lower percentage in linear relation to the actual frequency. The overall result is the average of all four categories 2. Searches on Google in conjunction with IoT. 3. Tweets on Twitter in conjunction with IoT 4. Newspaper and blog mentions in conjunction with IoT 5. Number of employees that carry the tag “Internet of Things” on LinkedIn. All numbers valid for March 2015 to June 2015. Sources: Google, Twitter, LinkedIn, Company websites, IoT Analytics * approximated number

IoT Analytics

1 - “17 Mind Blowing Internet of things Facts Everyone Should read” Forbes.com, November 2015

2 - “Which is The Best Internet of Things Platform” Techrader.com, August 2015



Envision Charlotte, located in the city of Charleston, SC, is a public-private partnership between civic leaders, Verizon and Duke Energy promoting sustainability. The first initiative connected 60+ uptown buildings to monitor energy use. The overall result: the city reduced its power usage by 8.4%, saving \$10 Million³.

Just picture a highway system that automatically reroutes traffic due to an accident or weather, or that automatically charges your phone just by walking a handful of city blocks. A metro where buildings schedule their own maintenance and adjust lighting to reduce crime. This is the true promise of IoT.

How May I Assist You? – Context Aware Computing

Personal assistants like Siri, Google Now, and Cortana are rapidly becoming the new killer apps for smartphones in 2016, and will only become more predictive as they get asked to do more things for us.

In June 2015, Apple announced that Siri was being upgraded with iOS Proactive Assistant software. This means she can trigger certain functions or notifications without you having to touch the phone, and can even start a certain playlist based on your GPS location. And “Google Now on Tap” allows you to find information and apps related to whatever you’re currently doing on the phone.

Facebook is also making a move in this space with its messaging assistant called “M,” which can book reservations and purchase items on a user’s behalf. And let’s not forget Amazon’s Alexa, which is enabling us to re-up our stock of Britta filters, change the radio station, or turn down the lights just by hollering across the room.



Facebook

Wondervoice, located at CES in the Eureka Park Marketplace, is an always-on personal voice assistant that connects people to their social networks + apps in an eyes- and hands-free environment. The tool is fully integrated with Twitter, and works directly with your mobile OS to access anything on the device⁴.

Datamated

It used to be that you had to do something to create a new piece of data. But with the rise of IoT and machine-to-machine interactions, the devices around us are creating and exchanging massive amounts of information all on their own, all the time.

3 - “3 Smart Cities in Action” Govtech.com, July 21, 2015
 4 - Wondervoice.com
 5 - “The Internet of Things to Spur Data Center Demand” Datacenterknowledge.com, April 27, 2015

So where do you store it? According to research firm IDC, “The Internet of Things will need 750 percent more data center capacity in service-provider facilities than it consumes today⁵.” Who builds and manages these sprawling and expensive facilities will be a critical factor in who “owns” the space.

Then there’s the data governance aspect. Which is about controlling, sharing, monitoring, and managing all of these new bits and bytes. And this, in turn, continues to create new kinds of systems, structures and jobs. A big one getting lots of press right heading into 2016 are so-called “data lakes.”

Whereas a traditional data warehouse will store information hierarchically (i.e., structured files and folders), a data lake keeps everything as-is, and instead marks the information with a big set of metadata tags. So when a specific business question pops up, the data lake can just be queried without you having to know where you put something.

It’s all part of the brave new connected world we’re entering as we step outside of the browser, into our homes, and even outside of our front doors.

Trend: WINNING THE MICRO-MOMENTS

The last time you texted a friend, quickly looked something up, made a reservation, or updated your Facebook status has a name: “micro-moments,” as Google has dubbed them. It’s a concept that’s reshaping the marketing funnel and ultimately how companies communicate.⁶

What used to be “long form” predictable lifestyle behaviors have now been replaced by fragmented interactions that occur rapid-fire. There are hundreds of these moments every day with huge opportunities for brands and content players to monetize these moments. **BuzzFeed**, responsible for popularizing the now-ubiquitous “listicle” format, has an average time-onsite of just 36 seconds, yet enjoys a valuation of \$1.5 billion.

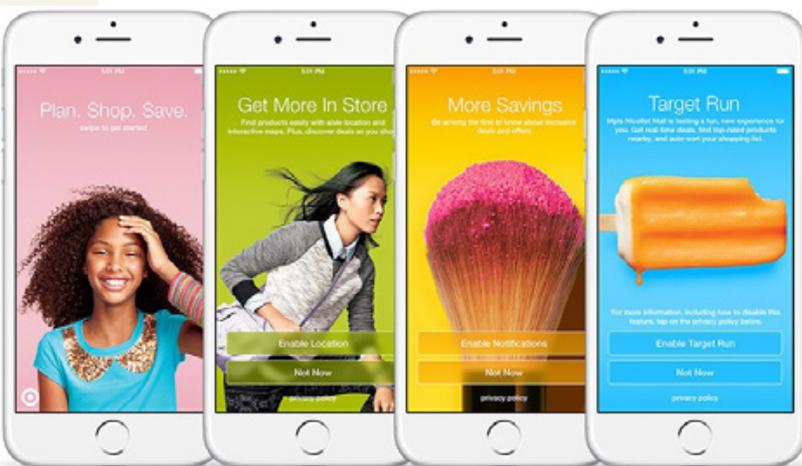
StoryTech Insight: The big job for brands is to segment each “micro-moment of truth,” and to identify and optimize content formats to convert those moments—by audience target, device, and context.

Moments Drive Retail

2016 can be considered retail’s “catch up year.” Rather than debuting a raft of new tech, the true opportunities are in putting the existing tech to better work and activating on key micro-moments in the store.⁷

Beacons: the low-energy Bluetooth transmitters that ping your mobile device present just such an opportunity. While targeted content delivery using geolocation isn’t new, beacon technology is special in its ability to “wake up” a downloaded store app that may not be open when you walk through the doors.

Geekwire



Last year, a number of big retailers, from **Macy’s** to **Gamestop**, launched pilot programs for the tech, but most never made much headway in building out app strategies or robust content programs.⁹ That’s set to change in 2016, with giants like **Target** also now jumping into the game. They’re going to start relatively slowly (their current pilot is limited to just 50 stores), but it’s a structured program from which they can draw meaningful data and build upon it.

“There’s real value in completely passive information-gathering: So beacons don’t trigger any acts of messaging, but they gather data by what parts of the location you have been to and how much time spent at each location,”

- Greg Ratner, co-founder of **Troops**¹⁰

As a result, you’ll also start to see luxe fashion stores get better at knowing your label preference and size the second you walk in the door empowering salespeople to better personalize and curate your shopping experience.

Tech like interactive mirrors and visual recognition—modalities that have been around for over a decade—are also finding new life. **Ralph Lauren**, for instance, has debuted magic mirrors in several of its flagship locations, and startups like **Partpic** are enabling local hardware stores to have exactly the part you need ready and waiting simply by you snapping a photo of it.

“We’re going to be able to track the physical world just like we’re able to track the digital world, with beacons as a proxy to help understand what consumers are doing.”

- Jeff Malmad, managing director and head of mobile and Life+ at **Mindshare North America**.⁸



NEW!

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AND GAP STORES*

See it. Love it. Have it held
in a store—with one quick click!

Banana Republic.

6 - “Best Practices: 10 Ways Marketers Can Compete for Micro-Moments” Ad Age.com, June 3, 2015

7 - “Retail’s Newest Brick and Mortar Bet” CNBC.com, May 2015

8 - “Retailers Eye Value in Beacon Data” Emarketer Report, August 11, 2015

9 - “Target Launches Bluetooth Beacon Pilot Program in 50 stores” Engadget, July 6, 2015

10 - “Retailers Eye Value in Beacon Data” Emarketer Report, August 11, 2015

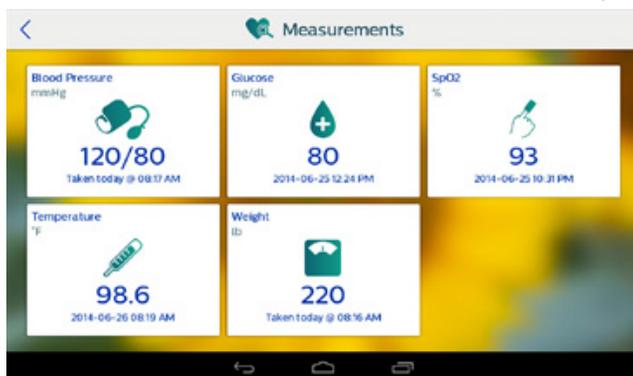
Moments Drive Healthcare

Big Healthcare is also actively building up its moment-enabled capabilities, including remotely monitoring patient vital signs through connected devices; implementing machine-assisted analysis of medical warning signs; and providing patients with tools to socially share health information for improved decision-making. It's expected to grow telemedicine at nearly 19 percent a year for the next three years.¹¹

Atop the leaders in this space is Dutch powerhouse **Philips**, which has launched its **HealthSuite** platform and opened up APIs through cloud-computing giants like **Salesforce** and **Amazon AWS**¹² with the stated intention of recruiting third-party developers to start building on top of it.

Their tablet-based **eCareCompanion** app, for instance, not only enables patients to input info about their health status, but can automatically connect with IoT medical devices such as a home scale, oximeter, blood pressure meter, and medicine dispenser. It also proactively reminds patients of pre-assigned health tasks, like taking medications, for improved compliance.

Philips



Netherlands start-up **Diagnose.me** further allows patients to choose from accredited specialists around the world based on sub-specialty, experience, price, etc., and upload their medical images for a second opinion.¹³



Moments Drive Innovation

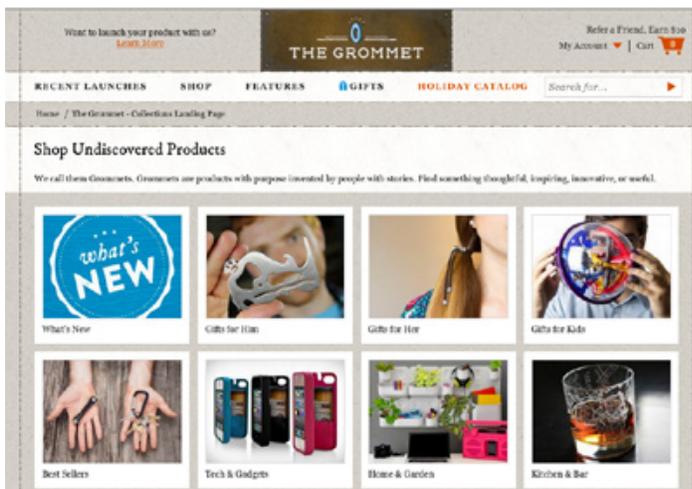
It's not just the garage tinkerers who are getting instant product feedback during micro-moment interactions on crowdfunding sites. Large manufacturers like **GE** are also starting to (selectively) show early-stage products and prototypes not for meaningful sales, but to gain insights, sentiment, and direction from the savvy segment of the buying public who frequent these platforms. **Misfit Wearables** went just such a route on **Indiegogo**, and they're now among the top 5 growing IoT startups out there.¹⁴



Indiegogo has a thriving consumer electronics business on their site and has brought their top CE startups to the show, in an effort to incubate their exposure to investors.

Ecommerce site **Grommet** is also responding to interactions by creating new organizational categories for how their audience likes to shop, based on feedback from their consumers. It's helping to connect their 'makers' with a shopper. This means you can shop Grommet by the value the product stands for, including 'crowdfunded', 'handcrafted', independent maker' and 'sustainable living'.

the Grommet



You might say that this is part of a larger trend by brands, big and small, of "Shark Tanking" their early innovations to see what gets gobbled up and what gets left as chum. If you're at CES this year, you can even watch it happening live with Mark Cuban & Co. on January 7th at the Venetian.¹⁵

11 - "Global Telemedicine Market Size 2015-2019: Market Will Rise CAGR of 18.95% by 2019" MarketResearchReports, December 3, 2015

12 - "About Health Suite 2015" Philips.com

13 - Diagnose.Me

14 - "The Five Fastest Growing Internet of Things Startups" tech.co, May 20, 2015

15 - CESweb.org

Trend: CATEGORICALLY SMARTER: VERTICAL TECH SCALES UP

While the IoT wave is spurring sea changes in everything from design to interaction mechanics, it's also inspiring more fundamental tech shifts in overdue vertical categories, ranging from automotive to food to entertainment.

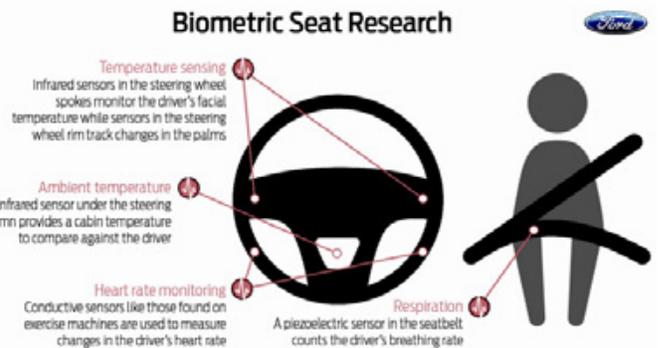
The Internet of Auto-Things

If you've been watching broadcast TV recently you might have noticed a shift in how carmakers are hawking their steel. Rather than the scenic mountain pass, we're increasingly watching sedans stop or park themselves, including dramatizing the former by showing how you would've backed over the neighbor's kids if the car hadn't prevented the felony.

The promise of fully self-driving vehicles is still some ways off, but you can expect to see the targeted rollout of more autonomous features that continue to strip the riskier parts of driving from the driver. (Even though California recently passed a law requiring a licensed driver to be at the wheel).

For instance, more aggressive driver override systems. As sensors get more sensitive, the vehicle will ultimately have a better read on the road than you will. So even if you want to floor it, the car will increasingly act on behalf of your self-preservation.

Wrongdoers will also have less of a chance to do wrong, with biometric access getting more sophisticated (think: fingerprint readers like our phones). Plus as OEMs like **Ford** keep pushing ahead with their "Active Health Monitoring" efforts, we'll even see the seatbelt functioning like a wearable device—automatically pulling the car over if you have a heart attack or go into diabetic shock.

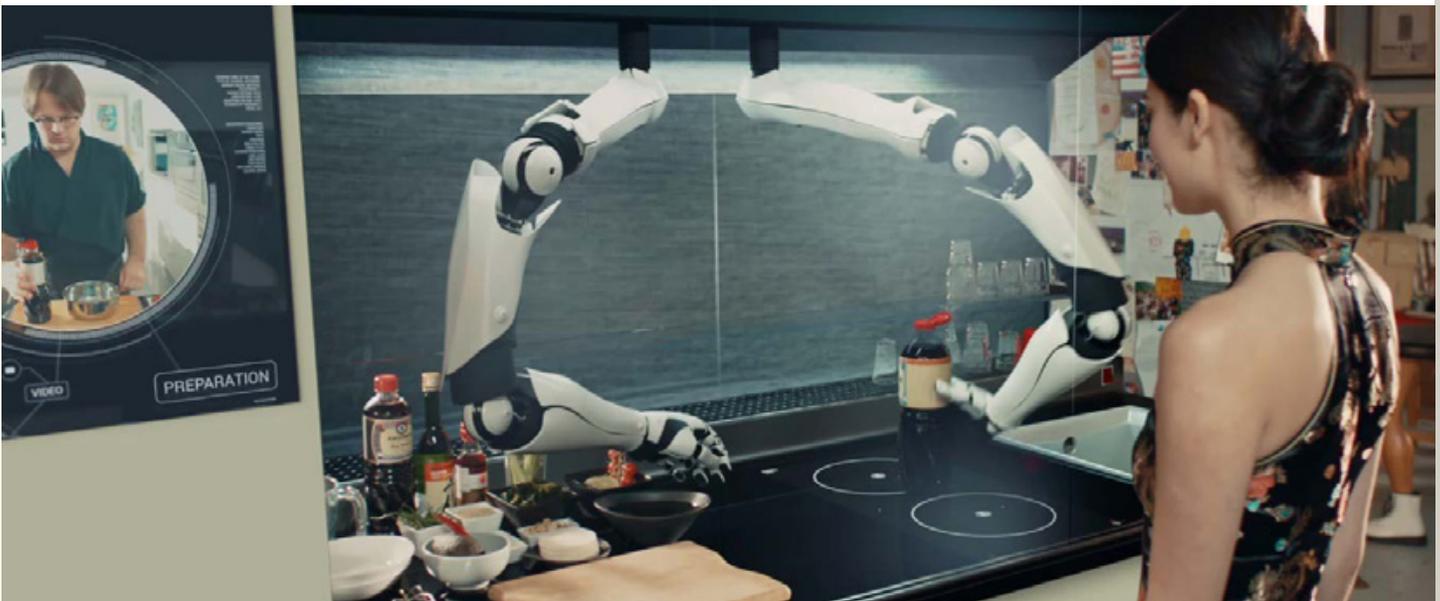


The Joy of Connected Cooking

Given this country's insatiable infatuation with all things edible, some of the cleverest new tech is finally modernizing the kitchen. IoT has basically become your sous chef.

Innit's solution is a top-to-bottom play doing everything from deciding what temperature to prepare specific foods, to adjusting cooking time as necessary, to even making sure everything's ready at the same time. The platform is built on machine learning (i.e., it learns from the data you create), and is powered by high-tech sensors which can detect whatever it is you're making for dinner and produce perfect results every time.¹⁶

Moley



Moley has created the world's first robotic kitchen, featuring an integrated, fully functional robot. The prototype was premiered to widespread acclaim at Hanover Messe, the international robotics show, and won Best of the Best at the Consumer Electronics Show in Asia May 2015 ¹⁷

¹⁶ - "Inside the Kitchen That Listens to Food and Cooks by Itself" Wired.com, November 2015

¹⁷ - Moley.com



innit

"It's a 21 trillion dollar industry, and it's been stuck in the 1970s," says. "The last big innovation was the microwave, or maybe your Nespresso machine."
 - Kevin Brown, cofounder of Innit¹⁸

Although don't think that the big boys are going to leave this space to the startups. **Miele's SuperVision** oven acts as a hub for all your home appliances. So, for instance, you can see how long until the washing machine is done without ever leaving the kitchen. And if you do step out, an app on your smartphone will notify you when the chicken in the oven needs basting.¹⁹

But that's just today. Looking ahead, **Miele** is testing out **IBM's Watson** to actually juice the bird for you. So maybe the future of cooking isn't actually going to produce better chefs, but ones who can't measure and adjust their own ingredients. God forbid a sensor shorts out at Thanksgiving!

IoToys

The height of toy technology used to be sticking a cassette into a teddy bear to watch its mouth move. Now we have life-sized robots featuring built-in digital tablets with interactive educational programs (i.e. **AvatarMind's iPal**, which was originally introduced as a play friend for the 100 million one-child families in China).²⁰

Avatar Mind



But the robots come in more manageable sizes, too. **Dash and Dot**, weigh just a few pounds, but represent a massive breakthrough from manufacturer **WonderWorkshop**. These two companion bots subtly introduce children to key concepts of coding, as 8-and-up kids use their iPads or Android devices to design fun programs for them to carry out. Everything synchs up via Wi-Fi, and the toys also integrate with **LEGO**.

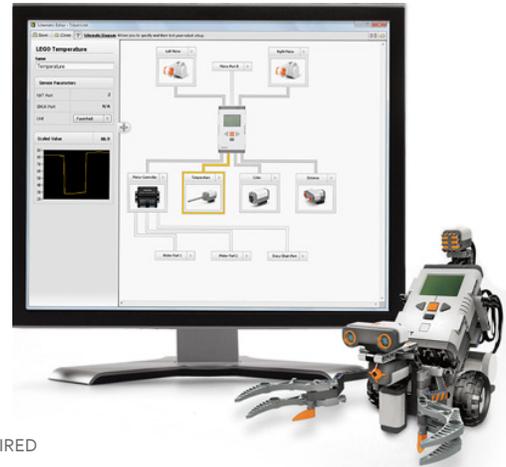


Wonder Workshop

18 - "Inside the Kitchen That Listens to Food and Cooks by Itself" Wired.com, November, 2015
 19 - "Smart Fridges Kitchen Tech Internet of Things" The Guardian, August 2015
 20 - avatarmind.com

Speaking of which, **LEGO Mindstorm** offers even more flexibility for kids to bring to life essentially whatever they can dream up. This unique offering from the brickmaker provides kids with a computer processor, USB ports, SD card readers, and motor parts—allowing them to control their robot creations with an infrared sensor system and icon-based programming language.

It's all part of a bigger push to introduce real world-oriented learning earlier and earlier in the development cycle. Which shouldn't surprise anyone, given the intimate relationship most parents have with their tech devices.



WIRED

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Trend: SO WHAT'S THE STORY: The New Reality of Content, Screens, & Audiences

Yes, business models that have been in place for 60 years are being “disrupted” right now across the content value chain from production to distribution to consumption. Studio’s are behaving like VCs, online portals are more like TV networks and stars born out of YouTube, Vine, Snapchat and Periscope are acting more like tech entrepreneurs. And as always, the infrastructure is a moving target. Business models and content discovery are not fluid and measurement remains a challenge. But many are considering this the dawn of a new exciting era in content, because of all the opportunities to create true engagement through digital platforms.

Not So New Media.

The trend of major media companies acquiring MCN’s (multichannel networks founded on the aggregation of content channels generated by “creators” on YouTube) seemed to begin back in 2012 with **Legendary Pictures**, **Dreamworks Animation**, **Amazon** and **Disney** all making major acquisitions. While other independent digital content houses like **Machinima**, **Tastemade** and **Defy** remain on the block, who knows how long it will be before larger media companies or brands come calling? It’s not just about YouTube anymore. Multichannel networks now refer to themselves as MPN’s, multiplatform networks, and the distinction is an important one. These media companies will no longer rely on YouTube as their sole means of distribution and monetization. That’s making the way for other content platforms to repeat that business flow. Look at the growth of short form platforms like **Vine**, **Snapchat** and **YouNow** all building influencers, advertiser offerings and their own ecosystems. Next up is socialcasting or live streaming platforms **Periscope**, **Meerkat** and **YouNow**.

Everyone’s A Storyteller

Content is no longer just the territory of networks and studios as brands become media companies. In March 2015, Hotelier **Marriott** produced its first original movie, “Two Bellman,” which was shot on location at their properties and premiered to great acclaim. Marriott’s new content division is led by former ABC TV veteran David Beebe.

JW Marriott



Everyone Is Exploring New Models

YouTube is also disrupting itself with its new subscription service YouTube Red, while **CBS’** “CBS All-Access” and **NBC’s** “SeeSoo” (comedy-focused) are launching as paid streaming services.

Music to Whose Ears?

Streaming audio is shaping up to have a banner 2016. Among users 13-and-up, we’re already spending more than 4 hours a day listening to audio (including terrestrial radio and downloaded music).

While Jay Z’s **Tidal** hasn’t gained much traction, mobile carriers like **T-Mobile** are stepping in: enabling subscribers to stream music from 44 different partners without being charged for data usage. But **Spotify** (number 1 in the world), **Pandora** (number 1 in the US)²¹, **Soundcloud** and **YouTube** made up the vast majority of streams in 2015. Pandora is banking on advertising to drive growth (\$730 million in 2015), while Spotify (just \$100 million in ads) and now **Apple Music** are betting on paid subscriptions. Yet don’t count out YouTube and its 120-plus million tracks of off-label songs.

Top Music Streaming Apps by Users, Worldwide, Q3 2015

iPhone		
Rank	App	Change vs Q3 2014
1	Spotify	▲ 1
2	Pandora Radio	▼ 1
3	SoundCloud	-
4	Tuneln Radio	-
5	iHeartRadio	-
6	Deezer	▲ 1
7	Amazon Music	▲ 1
8	Tuneln Radio Pro	▼ 2
9	radiko.jp	-
10	MelOn	▲ 2

Android Phone		
Rank	App	Change vs Q3 2014
1	Spotify	-
2	Pandora Radio	▲ 1
3	Tuneln Radio	▼ 1
4	SoundCloud	-
5	Deezer	-
6	Amazon Music	▲ 1
7	MelOn	▼ 1
8	iHeartRadio	-
9	Saavn	▲ 5
10	Gaana	▲ 9

* Worldwide excluding China. Excludes pre-installed apps. Quarterly data calculated as straight average of component months.
© App Annie 2015

App Annie

How you distribute and via what platform remains paramount for many artists and the choice can even become a political statement. Taylor Swift, who has become the official spokesperson for artist rights, famously wrote an open letter to **Apple** last year explaining why she would not be posting her music on their new streaming service due to their monetary policy during their ‘free period’.²² Apple ‘swiftly’ responded and agreed to pay artists something.

In a similar vein, Imogen Heap announced at a live event that she’d be releasing her latest song, “Tiny Human,” via virtual payment solution **Bitcoin’s Blockchain** delivery platform.²³ Bitcoin aims to record all recent transactions on a network and will basically allow for instant and transparent royalty tracking and real-time distribution of monies. Again, this public foray served as a wake-up call to current streaming music models, and also educated the consumer on new technology that was previously reserved for Bitcoin users.²⁴

21 - “Spotify Claims Streaming Music Throne Worldwide, But Pandora Is Still Top Service In U.S.” TechCrunch, December 1, 2015

22 - “Tech and Media Outlook 2016 WSJD Conference” activate.com, October 20, 2015

23 - “I’m Imogen Heap. And This Is Why I’m Releasing My Music on Blockchain” MusicNews.com, October 5, 2015

24 - “Live stream: Imogen Heap releases Tiny Human using blockchain technology” The Guardian.com, October 2, 2015

Immersive Content – The Next Horizon

Virtual Reality and Augmented Reality are merging together into what we're now calling "immersive content." And it's a market that **TrendForce** pegs at \$70 billion by 2020.²⁵

Augmented Reality provides a layer of data and visual information over the scene you are looking at, which can be static or interactive. Examples include heads-up displays on car windshields, the visors on motorcycle helmets and **Microsoft HoloLens**.

Microsoft



Virtual Reality is an experience that immerses you at the center of an environment through the use of head mounted displays or HMD (**Google Cardboard**, **Oculus Rift**, **GearVR**) which allow a 360 view of the world around you. Live action content is shot with special camera rigs, and gaming makes use of software engines such as **Unreal** and **Unity**.

Samsung



Creative Opportunity: Creatively, things are all over the place in a fertile ground for experimentation. Television show runners, networks, producers, and media companies are learning as fast as they can— trying to identify the real opportunities with audiences, and orchestrating the right marriages between creative and tech. Other verticals such as medicine, education, engineering, architecture, travel and journalism are also quickly making headway.

25 - "Virtual reality market value to hit US\$70 billion in 2020 due to app developments, says TrendForce" Digitimes, December 7, 2015

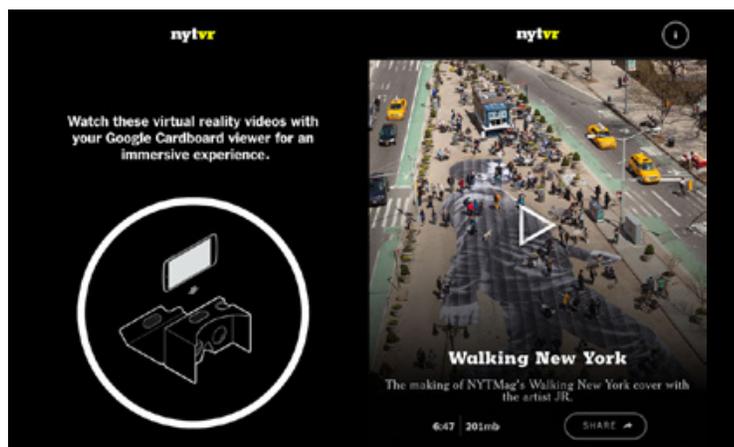
Tech Challenges: While the physical and psychological effects of VR are being researched by educational institutions such as the **Stanford Virtual Human Interaction Lab** and the **USC Institute for Creative Technologies**, VR pioneers like John Carmack of **Oculus** are rapidly solving tech challenges. New companies from tool set creators and software, to camera and rig companies, to studios and agencies seem to be popping up almost daily, drafting behind the giant speeding truck that is VR.

From one end you have untethered mobile phone based headsets such as **Google Cardboard** and the **Gear VR**, and at the other end are the wired experiences of PCs and game consoles rumor has it **Sony** is working on a wireless headset for **PS4**. Stereoscopic and VR content will be just a download away. Consumers can play too with a variety of 360 cams from **Ricoh**, **Kodak** and more. These low price cams are also being used by the pros for previz. Inside of Samsung's Gear VR headset you can also view **Netflix** and **Hulu**. As we go to press, both **Amazon** and **Best Buy** are sold out of those headsets.

Investments: The media companies are investing heavily. **Disney** led a \$65million round for **JauntVR**, **Comcast** and **Time Warner** put \$30.5 million into live streaming VR company **NextVR** which has a big bet on sports and even **Kevin Spacey** invested in VR art museum experience called **WoofbertVR**.²⁶

Immersion Marketplaces: **Facebook** is now 360-video capable. **YouTube** has also had the capability for a while, and **Vrideo** and **Littlstar** are indeed becoming the home for 360/VR creators. Coming from brands, studios and TV networks are mostly immersive experiences, with a little bit of narrative and a little bit of gimmick. Wired Magazine 360 has put you on stage in the middle of "The Lion King" on Broadway, "Star Wars" and "The Walking Dead" released VR Series. News publishers are investing in VR as well for a new era of immersive journalism. The NY Times changed the game last year with the delivery of **Google Cardboard** and the first of 5 VR docs called "The Displaced" to 1.3 million Sunday subscribers.

uploadvr.com



Conflict journalist Christian Stephen creator of "Welcome to Aleppo", referred to VR as "the most important journalistic tool I have ever had."²⁷

26 - "Kevin Spacey picks virtual reality as next Netflix" Financial Review, November 17, 2015

27 - Kaleidoscope VR Film Festival panel, September 23, 2015

THE GREAT SHAKEOUT OF 2016

Each year at CES, the tech frenzy reaches a frothy peak. Bold assertions and predictions are made, and entire categories seem to morph to life all around us.

But the crystal balls were sometimes cloudier than we wanted to acknowledge, or the market was slower to react—if it decided to react at all. Which is why, heading into 2016, it's important to level-set from last year, and go into CES 2016 with clear eyes and heads screwed on straight. It'll only make this year's work stronger and more relevant.

The Information

The Cord-Cutting Shakeout

The Hype: We've been hearing about the imminent death of broadcast television for at least a good 3 years. And each time the doomsdayers and naysayers get louder—pointing to the Millennial generation who's already done away with landlines almost entirely, and to whom "appointment TV" is as foreign a concept as winding up an unraveled cassette tape with a pencil.

The Shakeout: Traditional TV is still capturing nearly 3/4 of our 177 average hours of monthly viewing time, along with \$170 billion of the \$185 billion in total U.S. video revenues (counting paid cable subscriptions and advertising).

Digital subscriptions (OTT) are estimated to reach 50.3 million by the end of 2015, compared to 97.1 million cabled households. But for Big TV, that's only down from a peak of 100.8 million subscribers in 2012.²⁷

The fact is that the cable cord is not going the way of the landline anytime soon. While OTT services like **Netflix** and **Amazon Prime** provide superior discovery and user interfaces, the economics of cobbling together individual packages still don't make sense.

StoryTech Insight: A clear opportunity may actually be in partnerships with traditional media companies and/or content creators as "experience" enablers. For instance, with most cords still plugged in, look to deliver premium content in conjunction with the major cable companies. So in exchange for engaging with the brand (accessed through a channel guide area), viewers can be offered up things like contests, sweepstakes, product trials, games, forums, etc. For enabled households, this can even include VR applications.



There is hope: Fitbit debut as the first wearable fitness tech company to IPO, raising more than \$731 million.

The Wearables Shakeout

The Hype: While wearables haven't exactly fallen out of favor, they're also not living up to the valuation once placed on them at least not in their old format. Rather, the future now looks more like it'll be in the form of embedded clothing sensors and multi-app smartwatches—maybe.

The Shakeout: Fully 89 percent of people who aren't buying a smartwatch have been holding off because they can't exactly see the value in having one.²⁸

It's a problem that's as old as technology itself: the need for a killer app. PCs had spreadsheets, smartphones had email, and **Nintendo** kept the kids quiet. What is it enabling us to do that makes our lives fundamentally easier and therefore drives value?

Sure, we can now track our steps and measure our heart rate and even see it all beautifully charted out for us. But obesity and heart disease numbers are pretty much where they were a year ago. Yes, there are all the notifications we could ever need right on our wrist, but how far away are our phones that we can't just look there instead?

WISEware, a company featured on the floor at CES in the **Health and Wellness marketplace**, is focused on design and aesthetics as much as advanced sensing tech.²⁹



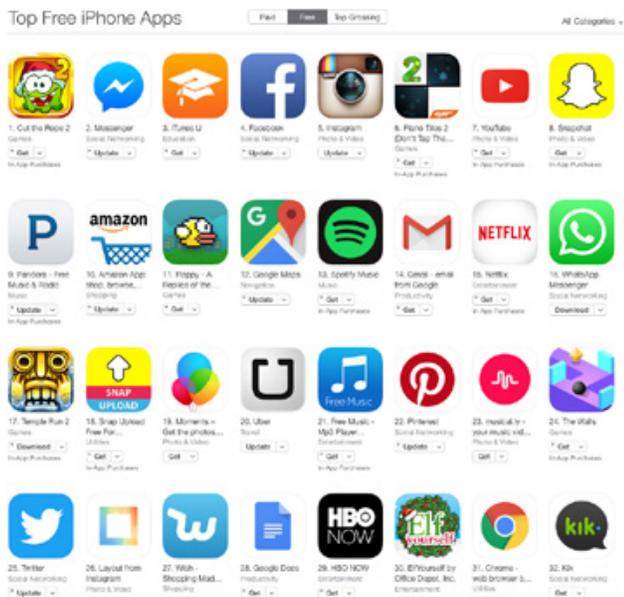
WISEware

StoryTech Insight: This space will remain stagnant until we nail the value proposition for each of these devices. In the fitness category, for instance, we already recognize the importance of a trainer and group exercise for sustained motivation and commitment. How might that be uniquely delivered through a wearable experience or technology garment? Or how can we finally use our watch like Captain Kirk or Inspector Gadget, like we've always wanted to since we were kids?

27 - "Tech and Media Outlook 2016 WSJD Conference" activate.com, October 20, 2015

28 - Kantar

29 - wisewear.com



Apple

The Mobile App Shakeout

The Hype: Not so long ago, there was an app for that. Today, there's dozens.

Social media and entertainment account for the top six app categories, and drive two-thirds of total time spent on apps—with **Facebook** ranking as the #1 smartphone app by total time spent for almost half its user base. In fact, Facebook's unbundling of FB Messenger has helped drive massive growth of messaging in the U.S.³⁰

While there are some amazingly well produced entrants in each category, the hard truth is that the vast majority of them never see the light of day on your mobile device. Because, just as with our multi-hundred-channel universe, there is likewise a very finite number of apps that consistently command our attention.

The Shakeout: If you're not a top 20 publisher, it's almost certain that you won't break even on your development costs (we're averaging \$358 million per app for the 20 biggest fish vs. less than \$28,000 for the minnows in the App Store). And the only way to rank up there, generally speaking, is to apply traditional advertising methods and dollars—i.e., banners, TV spots, etc.—which only the major publishers can afford.³¹

We've also hit a behavioral ceiling and a cognitive load limit in that we're not using any more apps than we were a few years ago. It's been holding steady since 2012 at around 9 downloads per month and 26 or so opens. This is yet another instance of our self-limiting media behaviors in the face of too many choices. The data also shows that the majority of top apps are monetizing outside of the app store. In other words, they're not counting on a paid download to turn a buck.

30 - Comscore 2015 US Mobile App Report

31 - "The Truth: Most Apps Fail," AppEmpire.com

32 - "2015 Roundup Of 3D Printing Market Forecasts and Estimates" Forbes.com, March 2015

33 - "An Update on 3D Printing and the Postal Service" USPS.com

StoryTech Insight: The odds-on approach for app-building brands in 2016 is to integrate yours more directly into your main line of business, or sit on top of another one really smartly. If you're aiming for the latter, ensure that your app is creating new value in an existing channel, like how **Vurb** is layering Yelp-like features onto 1:1 mobile messaging (which itself is growing faster than the Internet right now globally). Otherwise, look to extend your core proposition in your core category: focus on a mobile app to help deliver stronger value and provide improved access for your customer. If you're a retailer, an integrated beaconing app is a very strong bet. With this strategy, it won't really matter where you rank in the app store.

The 3D Printing Shakeout

The Hype: Around this time two years ago, 3D printers were poised to be as common in our offices and homes as **HP LaserJets**. Items we use everyday, from the kitchen to the garage, were going to be replaced by 3D-printed parts that would be downloaded from a library and tailored to our needs. If it didn't spell the end of the local hardware store, it at least meant significant dollars would shift to new consumer marketplaces and DIY shops.

3ders.org/news.cn



The Shakeout: The real boon of 3D printing is actually happening on an enterprise scale, largely in industrial and engineering applications. In fact, **PwC** estimates that 2/3 of manufacturers are now using 3D printing in a prototyping or innovation capacity and that a third of these are actively experimenting with how they can incorporate it into their actual production process. Overall, it's a market that's expected to reach at least \$8.6 billion by 2020, and become 50 percent cheaper and 400 percent faster in the next 5 years.³²

StoryTech Insight: The consumer market isn't dead, and there are plenty of retail outlets still actively testing out 3D-printed services. For instance, **Staples** has an offering for gifts and novelties, and the **U.S. Postal Service** is also planning 3D printing hubs to create a new shipping market which they estimate could reach more than \$600 million³³ one day in commercial shipping revenue.

But as a brand or service organization today, there's tremendous untapped value in setting up a relatively inexpensive maker lab and testing prototypes, ideas, new concepts, etc.



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