



## **“Connecting the Consumer”: Technology’s Near Future & Immediate Beyond**

With over 2 million square feet of exhibit space, 3,200 exhibitors and more than 150,000 attendees, many of whom were marketing professionals; this year’s International CES marked the largest tradeshow in the Consumer Electronics Association’s (CEA) history and the kickoff to the new model year & beyond for various technology. As in every year, the 20,000 new products debuted could generally be divided into two broad categories – technology shown to prove it is technologically possible, and technology that is commercially viable. This whitepaper focuses on the major consumer electronic segments and innovations showcased and the potential implications for the consumer and marketer.

### **Topline Summary**

- Innovation was largely seen in major segments such as internet connected devices, wearable technology, oversized televisions and automobiles which took up a bulk of the exhibit floor
- Connectivity, and the digitization of everyday objects also called “The Internet of Things,” is key across all segments as cloud-enabled experiences look to profoundly change many aspects of everyday life, both in and out of the home, even as privacy concerns receive greater scrutiny.
- The main storyline for the entertainment industry is “deeper, wider and richer” in quality, content and platforms as the experimentations that were seen in prior years have now given way to monetization. Recent category innovations are generally driven by the consumers desire to want high quality video on any device and content that pushes an engaged, interactive experience
- Many experts agree that the consumer electronics industry is currently in a transitional period between the growth spurt produced by the introduction of smartphones and tablets in the last few years and the next big wave of innovation. During this transitional period, the consumer is seeing a lot of choice across the price spectrum within many fairly new categories (for instance, 4K TVs now sell for \$999 whereas they averaged \$7,800 only 12 months ago)

### **Connectivity**

Connectivity was everywhere around the exhibit floor and a key theme across all product segments, it will also certainly play a central role with marketer’s ability to deliver the “right message, at the right time to the right person,” which was a popular mantra during the Brand Matters Keynote Panel.

Whether you were sitting in a Chevy, trying on a stylish “wearable tech” pendant, browsing household appliances or standing in front of an 85-inch TV; if it was on display it was very likely to be connected. CES product manufacturers continue to move forward on connectivity and find better ways of connecting with the consumer, more creatively – everything from refrigerators that can talk to your smartphones to Bluetooth-enabled toothbrushes.

In years past, many innovations focused on how a product could be connected but this has evolved to a growing number of solutions that do more than just connect a singular device, like a home appliance, to the internet. Now it’s about connecting all your devices, both within the home and out of it, with one another regardless of function or manufacturer.

Within this structure, developers and manufacturers are not looking at mobile devices as a competitor to other devices but rather as a central, complimentary, source that will easily tie all platforms together. It’s this kind of “open system” that will become a requirement for both consumer and marketer adoption.



It's no doubt that consumers are becoming accustomed to always-on access – and new devices on their person, in their kitchens and cars will only strengthen this desire – so it'll be important for advertising to follow the content in order to reach people consuming that content and for advertisers to engage in “real-time” or “right now” marketing in contextually relevant brand environments. Imagine the possibilities with just two of the key innovations currently in development:

- Connected cars will enable consumers to remotely control their cars (temperature, navigation systems, etc) or enable their cars to remotely control them (self-driving and parking)
  - GM announced a partnership with AT&T so that all future Chevys would be shipped with network technology. Conceptually, the two companies see the car as another potential mobile device on the network. For a shared data plan, for example, there could be your smartphone, tablet and your car
  - Several other announcements, such as Pandora launching in-car advertising in the form of 15-to-30-second spots, point to the car increasingly being treated as a media-consuming vehicle. The networked car will also increasingly become a potentially huge driver of mobile commerce complete with a Wi-Fi hot spot that energizes once you start your car
- LG connected-refrigerators will allow you to watch TV, listen to MP3 music, take and store digital photos, make a video phone call, use as a message board or surf the web, along with thermostat temperature control. They will also be able to “learn” about individual household members and their usage patterns for restocking reminders and such.

## Televisions

For all the hype around the second screen and streaming video, TV is still king according to the agency executives that participated in the “TV of Tomorrow” panel hosted by AOL and Omnicom:

- “TV still works; it sells products” – Richard Guest, president, Tribal Worldwide’s U.S. operation
- “There needs to be a balance toward leading-edge, but TV is going to be steady for most clients. People are still watching more than four hours of live TV a day on average” – Stuart Sproule, president, TBWA’s Digital Arts Network
- “Video reach still isn’t there yet for curated content. We have a long way to go to get the eyeballs of TV distribution” – AOL Networks CEO Bob Lord

The “TV is still king” theme played out in real life during CES 2014. As usual, the major television manufacturers like Samsung, LG, Sony, Sharp, Panasonic, and Toshiba along with several lesser known Chinese companies dominated the exhibit floor with huge, elaborate displays showcasing their newest televisions and latest technological advancements. And just like each year before, these were some of the most heavily-trafficked exhibits as people were curious, and dazzled, by the quality, clarity and connectivity of the next generation of TVs.

Ultra-HDTVs, Smart TVs, OLED TVs, “curved” flat-panel TVs developed to produce a more immersive viewing experience, along with transparent and flexible displays were all prominently displayed by several major manufacturers. While many of the devices are available to the consumer right now, experts believe that it'll still be several years at least before “curved,” transparent and flexible displays go mainstream and are considered commercially viable. Beyond those innovations, 3D TVs were noticeably scaled back within product lines from previous years.

Additionally, many television manufacturers showcased ancillary products to enhance the home theater experience like stereophonic sound bars, new wireless / Bluetooth-enabled audio products, new set-top



boxes and over-the-air DVRs while also focusing more on internet connectivity and apps...but the stars of the show remained the oversized TVs.

#### 4K Ultra-HD

*Definition:* a term for display devices having horizontal resolution of 4,000 pixels. CEA has adopted the term “ultra high definition television (UHD)” as its 4K standard. As a point of comparison, top-end regular HDTV formats have a horizontal resolution of 1,920 pixels which qualifies them as 2K resolution.



2014 marked a shift in the presentation of 4K TVs and technology. Last year, the major announcements centered on the many product introductions of new UHDTV sets from manufacturers; however this year’s announcements, besides the hype surrounding the “curved” panels, were mainly about content, production and distribution and involved not only manufacturers but content distributors and content providers as well. As the prices of the sets come down and these displays become more commercially viable, the industry understands that 4K content is needed in order for this technology to succeed and prosper.

Some of the major announcements included:

- Comcast will work with their programmers to produce 4K UHD TV content for Samsung 4K TVs in 2014. Since Comcast’s Xfinity TV customers with Samsung 4K TVs can already launch a 4K app directly to their TVs, allowing them to stream 4K produced movies and TV shows’ content via the web, this agreement looks to expand that quality content offering to their customer base
- Samsung announced deals with additional 4K content partners like DirecTV and online streaming services Netflix, M-GO and Amazon Instant Video
- The online streaming services are positioning themselves as a major outlet for UHD content as, in addition to Samsung, Netflix also made a deal with LG to stream content over their TVs in 2014 and Amazon Instant Video is working with Warner Bros, Lionsgate, 21<sup>st</sup> Century Fox and Discovery Communications for 4K content. Amazon has said all its new series comedies and dramas will be shot in the 4K format while Netflix’s new season of “House of Cards” has already been shot in 4K
- Sony was very active during this year’s tradeshow, announcing that their new Bravia TV sets will add 4K content from Crackle, Hulu and Netflix while several shows from Sony Pictures Television, like The Blacklist, are now being shot in 4K along with live 4K production of the 2014 FIFA World Cup. Sony also debuted a new 4K handycam to empower consumers to create their own UHD content; but this ability doesn’t come cheap at a \$2,000 price point

Finally it should be noted that, as video usage has increased significantly over the past several years, current video bandwidth availability could become an issue for these new sets as 4K will put additional pressure on this space so distributors may need to develop additional solutions for transmission.



### *Smart TVs*

Although oversized UHD TVs dominated most of the manufacturers' exhibits due to their physical footprint and visual appeal, the majority of new models for many manufacturers will actually be Smart TVs. For example, although Samsung's introduction of a high-end 105-inch UHD TV garnered most of the trade and consumer headlines, more than three-quarters of their 2014 TVs will be of the smart variety. Overall smart TV sales have doubled in the last year, from 11% to 22% of all sets sold, and velocity should only increase as manufacturers expand their smart TV offerings.

In their presentation, LG summarized rather succulently the challenges facing the Smart TV – "There are 160 million smart TVs out in the marketplace but most are being used like an ordinary TV. 53% of people are not aware of how much they can do with a Smart TV and 75% think they're too complicated." So, much like the Video-on-Demand technology that preceded Smart TVs, LG's goal is to make TV simple again which is a guiding tenet behind the launch of LGwebOS TV.

No longer limited to the smartphone, LG is using this platform to build a bridge to smart TVs. The navigation is fast and users can access all their favorite apps from the home screen, if they don't like how they're laid out they can just drag and drop to move them around, all-in-all it's very intuitive. There are a fair number of second-screen like features built in, for instance if a user is watching a program on cable TV they can pop up an overlay on the right side of the screen that gives them more info on it or links to other shows it thinks they'll like. The LG store acts as a sort of integrated hub for content where users will be able to download movies, TV shows, apps and even games. LG has also included options for voice and gesture controls to counter the tediousness of text entry via keyboard.

Another manufacturer pushing smart TV innovation is Samsung with their Overlay TV. This display enables viewers to stream live tweets on screen during TV viewing which is a great way to drive more engagement during live sports events and reality shows. Viewers can also search the web, watch video clips and run apps while watching live TV.

Outside of the traditional TV manufacturers, streaming set-top box manufacturer Roku announced that they will build and market a Smart TV in partnership with Hisense and TCL, two major Chinese TV manufacturers little-known in the US. Integrating the TV set and Wi-Fi compatibility with around 1,200 apps, or channels, Roku is trying to convince viewers that it can give them one TV set that will satisfy their viewing desires without the need for additional boxes. The big limitation here though, as it's always been with Roku, is the lack of available sports or news content.

### *3D TV*

When it came to TVs, CES 2010 was all about 3D TV as was 2011, however by 2013 3D had become fully commoditized. Although there were only a few TVs featured explicitly as 3D TV, it is still being included in several '14 models however the technology now is mostly listed just as a feature (much like motion-smoothing or surround sound). The general feeling among experts is that 3D is included as a feature because there was no reason why it shouldn't be, not because consumers are necessarily demanding it. Aside from a few glasses-free 3D demos, such as a UHD '55-inch screen from Samsung, the technology was largely banished from the big displays of the major manufacturers:



- Vizio got rid of 3D TVs across its current product line, but they are continuing to pursue glasses-free 3D technology in collaboration with Dolby who is the dominate company in this space
- 3D has largely disappeared from Panasonic’s features even as 90% of their ’13 lineup had some sort of feature. Out of 14 TVs in their ’14 lineup, only 3 are branded as 3D
- Sony, which almost singlehandedly promoted mainstream 3D gaming in years past, didn’t include 3D support in the PS4

### Summary

With several major content providers currently, or at least planning to, shoot their programming in 4K, UHD TV is likely to build “stickiness” with the consumer over the coming years. This “stickiness,” and likelihood of consumer adoption, is mainly due to the convergence of content providers’ embracing the format and the recent affordability of new displays on sale. However, based on the TV purchase cycle of consumers, it’s important to note that 4K UHD TV consumer acceptance will probably still be a slow build of a few years before it hits mass penetration.

Marketers will most likely lag behind content owners when it comes to 4K content production; but they should at least begin thinking about this format moving forward so they can leverage the technology to deliver the best presentation of their message when the displays become more mainstream down the road.

The lack of content is where some past innovations, such as 3D, have fallen short with true adoption. However, in 3D’s case it’s not only the lack of a robust content offering but also consumer’s viewing preferences – so far the audience has been limited primarily to “enthusiasts” and there’s been a low acceptance of purchasing further accessories, like glasses, that are needed to optimize the 3DTV viewing experience.

Additional avenues for marketers to reach consumers will open up as Smart TV connectivity continues to evolve. These potential advertising opportunities will include both standard-length commercials and long-form programming existing within the Smart TV interface or integrated hub, not to mention other content, social media and second-screen cross-platform possibilities.

### **Second Screen / Mobile Devices**

A study released during CES from CEA & NATPE stated that nearly 80% of consumers reported that they have accessed a second device at some point while watching TV programming, with almost all of those viewers accessing content related to programming before or after a show or between episodes and seasons. More than half of those accessing synchronous second-screen content do so during commercial breaks. As NATPE President & CEO Rod Perth said, “we believe this research study will illuminate new entertainment possibilities for consumers as well as content creators.” To take this beyond entertainment, this consumer behavior also goes a long way in justifying a content providers’ cross-platform advertising approach with marketers.

In a nod to this multiplatform engagement during TV viewing, Innovid and its partner Cisco introduced a new system it says will allow broadcasters or third-party app providers to deliver advertising to the second screen based on keywords that are spoken in TV shows on the “first screen.” Innovid is pairing with Cisco’s Contexta, a cloud-based system that analyzes broadcast content and generates contextually relevant metadata about



words being spoken. For instance, if Stephen Colbert talks about snacks on his TV show, the home viewer could immediately be served up an ad for Oreos on their mobile device or tablet.

Cloud-based services are becoming a key component of second screen experiences across mobile devices. Sony, in particular, has been very active in this space announcing a virtual pay TV service that will include popular live TV programs combined with a large library of VOD content which users will be able to access across devices. An intuitive and dynamic interface will learn about a viewer's preferences while also harnessing social media connections.

Cloud-based services have also become much more prevalent in DVRs such as TiVo who had a significant presence on the exhibit floor this year. TiVo is now offering a new network DVR, called Roamio, which can store video content for cable, satellite and telco operators on the cloud which can then be accessed on any device – set-top box, DVR, smart TV, iPad, smartphone. Through the user interface, viewers can even share recorded programs with an authorized user. Not just beneficial for consumers, TiVo is planning to let operators and programmers manage content rights, come up with multiscreen policies and create various tiers of network personal video recording features.

Digital companies have also been busy beefing up their ability to provide content to consumers, with some of them even taking on "TV-like" qualities with their second screen capabilities. One of the most active digital companies during this year's CES was Yahoo! with their launch of Yahoo News Digest, Yahoo Magazines as well as a new Smart TV app. The Smart TV group introduced a new graphic-heavy Yahoo! Smart Guide digital app meant to offer up recommendations on what movies and TV shows to watch based on their preferences (this guide would be accessed through the tablet exclusively in recognition of usage spikes during primetime TV viewing hours). The company also acquired Aviate, which created a smartphone app that automatically brings up relevant information or other apps to suit a user's activity. As Marissa Mayer of Yahoo! put it during her keynote address, "imagine if your phone can deliver the right experience to you at the right time instead of you having to search for it."

### Summary

There have been several recent studies that show how consumers view mobile devices as complementary to their TV viewing experience, using them to access content related to the show they're watching. Based on the insights from these studies, several innovative companies have been developing products that further blur the lines between TV and second-screen content, which means true integrated opportunities exist now for advertisers to maximize their exposure in the most engaged TV programs across platforms. However, measurement limitations, both in terms of accuracy and the development of common metrics across devices, will continue to be a barrier to full implementation until the industry settles on an approved methodology.

### **Wearables & Sensors**

Although the majority of wearable technology was confined to the wellness & fitness sectors via smart watches, fitness trackers and smart glasses, it'll be interesting to see how the evolution of wearables affects the entertainment and television industries in the upcoming years. These types of innovations were definitely a hot topic this year as the segment took up two times the floor space as last year. There were literally hundreds, if not thousands, of new wearable products, here's just a quick sampling of what's possible:

- Devices with sensors that detect how many viewers are in the room and recommend programming, or even advertising, accordingly



## CableNation

- Biometric tools including tablets that measure pupil dilation to determine whether a viewer is in the mood to watch a horror movie or a comedy as they're sitting in front of their TV
- Internet-enabled watches and headgear and activity-tracking devices like Fitbit and Fuelband
- Smart watches – some watches, like Kronoz, allow users to answer calls directly on their wrists, and others, like the Pine, also include biometric sensors for measuring heart rate. Watches can transform into a GPS, music player, health monitor, alert and message indicator and more
- Spurred by Google Glass, several companies showed off smart glasses with Epson, Vuzix and GlassUp and others exhibiting various smart eyewear products. GlassUp is designed to allow wearers to view incoming notifications like emails, text messages, app updates and more, but is far more simple than Google Glass, lacking key features like a camera
- Pet wearables – companies such as VOYCE are producing wearable monitors designed for dogs. The collar, which includes a number of biometric sensors, measures vital signs and other things like location which can be monitored by their owner remotely

### Summary

The key questions for manufacturers, consumers and marketers alike will be to determine “What’s real? What’s not real? What’s truly commercially viable and how are people ultimately going to use these?” Privacy and consumer tolerance will also be a concern for many of these products so it’ll be interesting to follow what the tipping point is for consumers on what they’re willing to accept, and expose themselves to, in the name of knowledge and convenience.

Real, mainstream acceptance of wearables is probably still at least a couple years away with the most functional, consumer friendly products likely to reach consumers while most other products remain in the “technology for technology’s sake” category. No doubt there will be plenty of “right now” marketing opportunities available within wearables since they inherently involve time and proximity, both to the person and place via GPS capabilities, but we do expect there to be a bit of a “wait and see” approach as this new segment evolves and begins to mature.

### Final Thoughts

As can be seen throughout this whitepaper, the continued innovation that’s focused around constant connectivity will only serve to increase consumer touchpoints, which will expand the media opportunities that allow brands to get in front of potential customers. This, coupled with the technological advancements being made in the television sector and the evolution of mobile as a complimentary source to all other platforms in and out of the home, makes it an exciting time to be either a consumer or marketer...and it’s a time where cable is well-positioned to engage consumers with quality content and superior displays while delivering the right advertising messages, at the right times, to the right people.

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