

**November 2018 @ CTM**

**THE DIRECTOR SPEAKS - The Importance of Trust**



Societies come together based on their ability to work together towards common goals. By working with one another, progress is accelerated, compared to when we work as a series of disconnected individuals. This increased efficiency happens when two participants subdivide a task and the two focus on different components that come together in the end to solve a larger problem. For such specialization efforts to work, both parties have to trust that the other will hold up their end of the bargain. This is how civilizations grow and prosper. We trust governments to do the tasks expected of them –tasks that cannot be take on as citizens. We trust the companies we choose to do business with to provide the goods and services we could not satisfy ourselves.

Inside this fabric of trust, clusters of interacting organizations form, and leaders emerge to shape the personality or culture of that cluster. For customers to feel comfortable dealing within an organization, they have to trust the organization, and for one organization to trust another, the leaders have to trust one another. Equally important, the members within the community have to both trust the leader and vice versa, or the organization could fail. The loss of trust between any parties leads to a higher the risk of failure, which drives friction or cost

into the process as the parties develop mitigation strategies.

There are those that would argue that human resources, a positive balance sheet, or the means of production are a company’s most valuable asset. I would argue that trust is a company’s most valuable asset, with the physical or intellectual assets being tools to validate that trust (“Trust me, we can deliver”). It may even be fair to say that marketing is intended to assign value to goods and services based on that trust. It is clear that if a company loses the trust of its customers, it has to discount its products until it can earn their trust back.

The [2018 Edelman Trust Barometer](#) show that trust in both business and government has been eroding. Interestingly, this same report indicates that people expect companies to lead the reversal of this trend. While technology might provide tools to aid these efforts, this not a situation technology can fix on its own. While many analysts have noted the customers desire to work with altruistic companies, perhaps the issue is deeper than that. Perhaps the real message is that the customer (and employees) not only wants to deal with socially conscious companies, but they want to deal with partners that understand their values and treat the customer with respect and trust. Perhaps, the turmoil in the market is going through a metamorphosis that can be embraced or resisted.

**UPCOMING EVENTS**

- **Nov 2-18, 2018.** [Innovate LA 2018](#), held throughout the Los Angeles area.
- **November 7, 2018.** I3 Consortium Technology Committee Teleconference
- **Nov 9, 2018.** [SoCalBio Digital Health Conference, City of Hope](#), Long Beach CA
- **Nov 15-17, 2018.** [LA Commotion](#), Los Angeles CA
- **Nov 27, 2018.** [TIECon Southwest](#), Long Beach, CA
- **Nov 28-29, 2018.** [IOT Tech Expo](#), Santa Clara Convention Center, Santa Clara, CA
- **Nov 9-Dec 9, 2018.** [Los Angeles Car Show](#), Los Angeles CA
- **Dec 4-5, 2018.** [Impact > Cities Conference/Workshop](#), Las Vegas NV.
- **Dec 4-6, 2018.** DataWest 2018 Conference. UCSD San Diego, CA
- **December 12, 2018.** I3 Consortium Meeting, Los Angeles CA
- **Dec 13-15.** [MedTech Impact](#), Las Vegas, NV
- **January 4, 2019.** I3 User Group/Conference, Los Angeles CA
- **Jan 8-11, 2019.** [Consumer Electronic Show](#), Las Vegas NV
- **Jan 29-Feb 1, 2019.** [IOT Evolution](#), Caesars Palace, Las Vegas NV
- **Feb 20-22, 2019.** [NIST Smart and Secure Cities Expo](#), Washington DC
- **May 13-16, 2019.** [IOT World](#), Santa Clara Convention Center, Santa Clara CA

*If you have an event that you would like us to include in our newsletter, please send an email to [ctm@marshall.usc.edu](mailto:ctm@marshall.usc.edu)*

**IN CONVERSATION WITH Ann Nash, Technology, Media and Telecommunications Marketing Leader, PwC**

Ann is the technology, media and telecommunications marketing leader for PwC. In this role she is responsible for overall go-to-market strategy, leading the marketing team and driving the marketing strategy and program development in the US. Ann has had a successful career in product and service marketing, product management and communications from start-ups to large global organizations. Prior to joining PwC, she was senior director of marketing at Phoenix Technologies where she had broad responsibilities for marketing communications, public relations, company and product messaging, and technical publications. She has also held senior marketing roles at Oblix, an internet security software



company that was successful acquired by Oracle, as well as Symantec. She started her marketing career as a product manager in satellite television at General Instrument. Ann received her BS in Business and Finance from California Polytechnic State University - San Luis Obispo, and her MBA from University of Redlands. She is an avid runner and enjoys healthy cooking, art and spending time with her husband and two daughters in the Bay Area of CA.

1. **Marketing has changed more in the last 5 years than in the previous 20 years. We should expect the rate of change will further accelerate going forward. What are some of the top skills companies will expect from future marketing people?**

You're right. The rate of change will continue to ramp up as marketing technologies proliferate, channels morph and expand, and savvy marketers continue to figure out new ways to cut through the clutter. Not an easy task!

Today's marketer needs to be a Renaissance marketer - full circle of skills. Table-stake skills include qualities like agility, leadership, great communicator, customer-centric mindset. But that savvy marketer? Here's what companies are looking for:

(1) Technical and analytical skills. Digital marketing technologies and the availability of data continue to grow. Knowing how to use data and convert it into valuable information is key. You have to know the right questions to ask, how (and why) your audience is or is not engaging with you, and make fast decisions based on what the data tells you.

(2) Content developer. Whether it's B2B or B2C, great branded content makes for a great customer experience. Identifying the right content development and discovery strategy in a constantly changing environment is a resume-building skill.

(3) Innovator - with a twist. Augmented reality, IoT, social selling, AI, location-based social, big data, etc. The list of cool tech is long. Companies want marketers that thrive on innovation, but not just for the sake of innovation. For the sake of driving real business results that they can prove.

(4) Finally, a high level of emotional intelligence. The best marketers are those that show a deep sense of empathy for others, whether that's with customers, suppliers, or fellow employees--you have to be able to walk in their shoes.

**As skills and expectations change, marketing's fit into the company's larger organization will change. How do you think the role of marketing will change within the organization and with the company's customers in the future?**

Pulling on the "Renaissance" thread a bit, Renaissance means "rebirth", and I think we are indeed seeing a rebirth in the role of marketing. Organizations trying to reach their audience with a relevant message face bigger challenges than ever before. We've left the world behind where our primary focus was all about moving buyers down the marketing funnel to a purchase decision. The abundance of devices, channels, and segmenting tools put marketers in charge of building relationships all along the customer journey. Getting closer to customers through more personal experiences is now the name of the game. And creating these unique and personal customer experiences is the heart of the marketing mission. So marketing is in the hot seat. In a good way! Marketing's role has always been to develop and promote products and services, it's just a lot more complex today and needs to center on building trust with customers. Trust through consistency, authenticity, and transparency in all channels.

**We have more data than we have ever had and the volume of that data continues to grow. But data is only valuable if it drives decision making. Do we need to worry about being overwhelmed by data or do you think we will find a way to turn that data into incremental value?**

Yes and Yes! There are many studies that indicate marketers are overwhelmed by data. What keeps me up at night is not necessarily the amount of data, but the challenge of extracting and visualizing the data. This takes a lot of time. When we do get to insights, the value is undeniable. The technology is available to turn data into insights - it just takes prioritizing the time to make it real. Part of that is about getting your team access to the right tools but it's also about making sure your team has the right skills to use those tools effectively. CMOs have to make some tough choices about the implementation, but the needs are very real and they're not going away anytime soon.

It all comes down to one truth you can't walk away from. Marketers can better serve their businesses by translating data-driven insights into more personalized experiences with customers. As marketers, we want to build trust-based relationships with our target audience. Being a good steward of the data we have access to is one way to do that. I have three pieces of advice here. (1) Hire marketers that have a knack and passion for technology, vs technologists that have an interest in marketing (2) Start with data from just one channel in your marketing mix and work to understand insights you can gain; then expand to other channels. and (3) The integration between marketing technologies is not always, well... what the brochure promises. Take a deep breath.

**Digital technology has completely transformed the telecommunications, media, and technology spaces. Other industries have been impacted but the forces of change in these other spaces are accelerating. What lessons should other industries learn from the experiences of the TMT space?**

I think some of the biggest learnings can come from understanding how the digital journey has really changed consumer behavior. In fact, at PwC we started a research program more than 10 years ago to help TMT clients understand these changes and think through implications for their businesses. Through our Consumer Intelligence Series, we've studied how new waves of digital technology changed the way consumers interact with content, products, brands and with each other. We tracked these changes through the evolution of social

media, video streaming, ebooks, smartphones, online gaming and virtual reality. But we now also take those learnings across many other sectors -- exploring the implications for digital health, e-commerce, fintech and smart cities, just to name a few.

## STEVE SHEPARD: Deciphering Blockchain and Where it Matters



In the world of technology, there is no single word that bring on more waves of passion, loathing, skepticism, confusion, and hope as the word "Blockchain."

Originally conceived in the seamy underbelly of the Dark Web to allow anonymous individuals to transact business, Blockchain has made its way into the bright light of the modern world and is seen as a messiah for some and the devil by others. For the majority it remains an interesting enigma – a technology that has the potential to provide significant benefit when applied to a problem in need.

Blockchain is a generic term for a large number of distributed ledgering systems, but it began its life as the crypto-currency Bitcoin. At its core, Bitcoin is a distributed financial database; parts of the database are dispersed redundantly throughout a network, so that if any one node is lost, the database maintains its integrity. Updating a distributed database is tricky in that a voting procedure is used where a sufficient number of nodes must agree to a proposed database change before that change becomes committed. To prevent a single node

from gaining control of the entire database Bitcoin's voting process asks each node to complete a complex computation task (proof of work) before each node's vote is considered. To keep the voting process decentralized, the complexity of the process increases as the network expands. While the transactions are encrypted to the outside world, the transaction records carry transactional logs with them so that the history of the transactions can be traced to their origin. It is a very elegant solution to a complicated problem, but it is computationally complex and bandwidth intensive, which makes the transactions slow and power-hungry. And while there is safety in knowing transactions are difficult to fake, it is also difficult to correct transactional errors in the database when they occur.

Bitcoin has spawned hundreds of similar crypto-currency systems, with each seeking to rebalance the tradeoffs needed to balance a distributed database. Then, there is the proliferation of more generic blockchain proposals that are intended to support open ledgering systems to support healthcare records, property records, voting, motor vehicles, supply chain, and many more application needs. Some systems are faster or more efficient than others, but at the expense of some of the original features. Some are more secure, and some are easier to maintain. There are so many variations of the original blockchain concept, and the intricacies of each system are so complex, it is often difficult to compare systems, and in some cases, it's hard to even compare them with a centralized database.

When talking about blockchain, realize that for every positive attribute that each variation of this technology brings to the table, there is a cost. Yes, like every other technology, there is no 'free lunch' with blockchain. And, one has to consider the pros against the cons before an informed decision can be made about how to leverage the new technology, or whether it even fits. For example, in an emerging country without a solid financial infrastructure, blockchain might be the logical choice as an alternative banking system. In a developed region with a well-regulated financial system, the performance issues associated with blockchain might prove unsuitable as a replacement for credit cards, but it may be perfect for interbank transfers. These examples are simply illustrative; each potential application has to be considered independently. And, because we live in a constantly changing world, you have to expect that the cost of electricity, bandwidth, and compute power will be different five or even ten years from now—and that could change any near-term decision in the future.

The point of all this is that there are places where blockchain makes absolute sense, and there are places where it does not. There are no technology silver bullets, and whether a specific technology fits largely depends on how well you characterize the problem you are trying to solve.

### THE I<sup>3</sup> CORNER (I3.usc.edu):

The I3 Consortium is developing seventeen I3 Use Cases. A Use Case begins as a single slide description of a situation where the existence of I3 permits a single IOT device to drive multiple applications or where the value of an application is increased by gaining access to an increased number of devices. Over time, detail will be added to each Use Case with an end goal of demonstrating the value of an IOT network when compared to a series of focused silos. The Use Cases currently being worked by the I3 Consortium include the following:

- Clean Streets (smart sanitation)
- Graffiti Identification and Removal
- Urban Firespotter
- Healthcare Coordination
- Prenatal Coordination
- Child safety Coordination
- Parking Finder
- High-Rise Concierge
- Multifunction Kiosk Manager
- IOT Network Management
- IOT Business Districts
- Coordinated Airport IOT Networks
- Crowd Sourced Analytics
- Smarter Cars and Trucks

- Vision Zero
- Context Sensitive Entertainment
- IOT Smart Campus Environments

We have also created an I3 mailing list for people who are interested in the I3 Project. To join the I3 mailing list, simply send an email to [i3-join@i3-iot.net](mailto:i3-join@i3-iot.net). The system will send you a confirmation email. Once you are confirmed, to send a message to the entire I3 team, simply send an email to [i3@i3-iot.net](mailto:i3@i3-iot.net). If you are interested in participating in the I3 project, as a volunteer developer or to participate in the development of one of the above use cases, please send an email to [manager@i3-iot.net](mailto:manager@i3-iot.net).

## READER CONTRIBUTIONS - Over the Top: A Game Changer for the Media Industry by Josette Bonte



Over the past ten years, Over the Top (“OTT”) video services like Netflix, Hulu and Amazon Prime have emerged and given rise to a new phenomenon where video services are no longer captive in the big bundle of the cable or telecom company. In 2018, video streaming has grown at an exponential rate with a new OTT video service or skinny bundle seemingly born every day. We are moving more and more towards an OTT universe where there will be a significant number of winners and losers. The impact of these new services on the economics of the entertainment industry at the production, financing and distribution level is multi-fold and increasing every day.

The first streaming company to make a significant dent in the production and financing ecosystem was Netflix. Armed with its easy Wall Street money, the company proceeded to compete and overbid for the same talent packages that only premium cable and broadcast networks had traditionally funded. Blockbuster original series like “House of Cards”, “*Marcos*”, “Orange is the New Black” and “The Crown” soon were to rival HBO’s “*Games of Thrones*,” though not all of their shows turned out to be audience hits. This had the effect of pouring lavish fresh cash into the industry and fueling already runaway TV series production budgets. Then Hulu and Amazon followed suit with shows like “*A Handmaid’s Tale*” and “*The Marvelous Mrs. Maisel*.” The trend is intensifying, as Netflix’s executives have recently revealed that they will have spent a total of \$8 billion on such original shows

for this year alone. The effect of this cash infusion on the economics of the industry is mixed. While it is a wonderful opportunity for Hollywood talent, it also makes shows more expensive to produce for all parties at a time when the balance of power is being re-distributed among all the various players, and while some secondary distribution outlets are drying up.

Distribution deals are also changing as a result of this OTT growth acceleration. On the downside, these new services have the potential to destabilize and profoundly affect the business constructs of the entertainment industry as we know them today. For instance, when Netflix funds a show, it insists on keeping the worldwide distribution rights because the streaming platform is now ubiquitous both domestically and internationally. The production companies or studios that produce these original series forsake all of the ancillary rights which they are typically able to keep with a broadcast network licensing deal. That is the flip side of the 100% financing provided by the OTT. Similarly the licensing deals concluded to acquire content by these “nouveau riche” OTTs also has a changing effect on the lifetime value of the content as it travels through its distribution windows. Netflix strikes very rich deals, but often as an exclusive license fee for multiple seasons of a given show (i.e., “stacking rights”) that essentially freezes the asset for the duration of the contract and prevents it from being distributed on other platforms. The real victims of this “Netflix-fication” of the TV industry are the broadcast networks, who have historically aired these shows in syndication. So-called “basic” (ad-supported) cable networks like USA, Lifetime or TNT that rely on fictionalized series are likely to be in serious jeopardy for lack of available shows to acquire at a fair price or at all. This, coupled with the omission of these lackluster networks from select skinny bundles will likely dry out the long tail potential of TV content in the long run.

In addition, OTTs have a game-changing influence on consumer’s TV viewing habits. They are getting consumers increasingly hooked on watching shows on their own time as opposed to scheduled broadcast TV. This does not bode well for the broadcast TV package offered by cable or satellite companies, left to differentiate with the provision of live sports. Netflix is also increasingly making consumers, especially Millennials and Gen Z, reluctant to tolerate commercials. The advertising industry has traditionally funded the productions of high-value network shows, but if the viewership of these shows dries up, so will in time the funding from advertisers, unless they find more targeted ways to reach consumers and diversify their content sponsorships. The Netflix, Hulu and Amazon phenomenon of over-spending on shows will have a hard time replacing the advertising investments that have supported the industry since the early days of television. That being said, advertisers will continue to find new ways of reaching consumers via heightened product placement and the inconspicuous sponsorship of shows, which Millennials in particular tend to favor.

But the most impactful may be yet to come: The deployment of direct to home video offers by media conglomerates. This phenomenon is a direct result of the consolidation and M&A frenzy we have witnessed in the media space over the past 6 months. The AT&T acquisition of time Warner and the purchase of Fox by Disney are particularly impactful in this landscape. Warner Media has announced the launch of a new direct to consumers streaming channel, featuring content packaged around HBO, in late 2019. Similarly, Disney/Fox is also planning to launch its own service next year with a package of exclusive shows from ABC, ESPN, Marvel and most likely some programming from Fox. Both companies have announced that will hold off selling some of their shows to Netflix, in favor of featuring fresh content on their new OTT services. This will create their own exclusive “window” that will give value to their new streaming services but will be detrimental to the other players, not just via content holdbacks but by creating new competition for viewership.

As we approach 2020, the media and entertainment landscape will start to look very different. I predict an increased fragmentation of services followed by a re-aggregation of "must see" programming by a small cluster of winners. In this landscape, heightened competition, instead of collaboration will become the new normal. But when you wonder if cable is dead, you have to ask: who owns cable? Who owns satellite? Telecommunications companies like Comcast and AT&T are media industry conglomerates that can turn on dime with regard to their video provision strategy and pivot to exploit the new and the old simultaneously as they hedge their bets. As mentioned above, AT&T now owns Warner Media, and Comcast, NBC-Universal and its affiliated networks. That enables them to play simultaneously in the traditional bundle and in self-cannibalizing new OTT or direct to consumer businesses. Less fortunate are the pure play telecommunications companies without a filmed entertainment affiliation like Cox, Spectrum or Dish Network.

## READINGS FROM THE EDITOR'S DESK

- [Execs Fear IOT could become a Major Burden](#) IOT environments are active IT networks. Devices come and go; they need to be maintained. Application also need to be supported. Unfortunately, for a majority, an adequate IOT maintenance plan is an often overlooked requirement.
- [Six Ways to Build a Customer-Centric Culture](#) Most corporate cultures are inwardly focused on their products or services and this makes it difficult for the culture to evolve in a way that is customer-centric. As a company does being the shift to become customer-centric, they are faced with collecting and managing significant amounts of data about the customer and this becomes another hurdle.
- [Dubai Launches its Self-Driving Taxi Service](#) Dubai has started trialing a driverless taxi service. The service will be operational in some specific, targeted districts where short hop transport is needed (e.g. a quick run to the mall or movies). Over time the service will be expanded as the experience is increased.
- [How L'Oreal is Balancing Data and Customer Trust](#) L'Oreal sees trust as a crucial element of commerce in a digital world. A trusted relationship with the customer has to be built over time, driven by data, and personalized for the customer. L'Oreal understands that trust has to be first earned from the customer and then maintained as a valued asset.
- [Five Ways your Data Strategy Can Fail](#) Data is a corporate asset that needs to be actively managed like any other asset to maximize business benefit. Like more physical assets, quality needs to be maintained, the business value is based on the data's ability to drive results, the analytics talent has to understand that they are overseeing a corporate resource, costs associated with the data need to be managed, and the data needs to be secured in order to maintain its value.
- [A \(Near\) Postmortem Review: What Sears Did Wrong](#) Retail venues historically provided places where people can browse and purchase products. Online retailers have undercut that legacy mission; forcing retailers to rethink their purpose - they need to change their mission to focus on the customer experience. Unfortunately, Sears, with its many divisions and mantra of internal competition could not develop a cohesive view of the customer they sought to serve.
- [A Future of Media in Driverless Cars Depends on Who Owns the Data](#) Everyone understands that in the world of autonomous driving, our transportation experience inside the car will change. This means new business opportunities for those in the car, But what is often overlooked is the implications this shift will have on the billboards, stores, and businesses that cluster around our roads. Do billboards become the curation engine that drives us to content? Maybe there is a beacon that feeds the url to either our personal devices or the car itself and the billboard shouts "please accept the suggestion." Does in-vehicle advertising become more important to roadside businesses or does roadside real estate decrease in value?
- [How GM went from a Government Bailout and Bankruptcy to being one of the World's Best-run Car Companies a Decade Later](#) The evolution of GM demonstrates that there is no single key to success. Success requires collaboration, diversity, open/honest communications, strategic thought, and a competitive desire to always do better. This attitude starts with the management team and then has to work its way through the corporate culture.
- [The Collapse of Strategy and Its Implications](#) Strategies often fail because they do not drive the decision making process; strategies have to do more than recommend a path forward, they have to recognize resources are limited and that a company has to stop some activities to allow others to flourish.

## CTM RESOURCES

CTM has a history of making topical and thoughtful information available to the CTM community. In support of our community, the following may be of interest to our readers. See [marshall.usc.edu/ctm](http://marshall.usc.edu/ctm) for a complete list of resources.

- [The Need for a Fourth Industrial Revolution Operating System \(free\)](#) . The adoption of Fourth Industrial Revolution thinking to our data-centric world may require that we rethink the macro systems that govern the way that humans relate to the data that surrounds them. In the 4th Industrial Age it is interesting to think of the technology around us as resources which could be managed by a societal operating system.
- [How AI Could Tackle City Problems Like Graffiti, Trash, and Fires \(free\)](#) . Cities operate fleets of diverse vehicles to serve their citizens. If these vehicles were equipped with video cameras, the captured images could be used by video analytic programs to self-detect many city operational issues in need of attention so appropriate crews could be dispatched without waiting for citizen complaints to be registered.
- [I3: An IoT Marketplace for Smart Communities \(free\)](#) . I3 (The Intelligent IOT Integrator) is a data governance vehicle that manages IOT data flows for many independent device owners. It supports the user's need to self-manage their own data streams, manages participation incentives, privacy, and monitors device security. This curated environment creates the free and open IOT data marketplace needed to accelerate IOT adoption.
- [The Evolving Internet of Healthcare Things \(free\)](#) . Healthcare IOT applications can be divided into hospital, doctor, and consumer applications. Over time these isolated worlds will blur and there will no longer be a single administrator that oversees the network infrastructure; healthcare data networks will be an open and fluid environment. New systems will be needed to manage vendor neutral data repositories and to govern data flows.

- **[The Fan Multiplier Effect \(free\)](#)**, Marketing Programs should be driven by behavioral objectives and measured by metrics. Instead, many marketing campaigns focus revenue driven objectives even though campaigns designed to increase fan engagement can often drive greater strategic value. This paper focuses on efforts to drive fans to advocate for a product or service so that they become your revenue drivers.
- **[Internet of Things \(IOT\) Model](#)**, CTM has developed an Internet of Things (IOT) model that allows users to identify profit pools within the larger IOT market, test how changes in pricing will affect demand, and see how different functional characterizations impact the model. The modeling tool is sufficiently flexible that the users can adjust the parameters in order to develop a personal view of market evolution.

## **SUPPORT CTM**

Please feel free to forward this email to your friends and colleagues who you believe would benefit from participation in the CTM community. For those of you who wish to be included in the CTM family of people who believe that technology is a tool and that business success is achieved by skilled wielding of the tools available to us, you can join the CTM family by registering [on our home page](#). A voluntary subscription would be appreciated for those that want to give back and help grow the CTM community ([click here to contribute](#)). If you have suggestions, topics you want to see included in future newsletter updates, or other general inquiries, feel free to email us at [ctm@marshall.usc.edu](mailto:ctm@marshall.usc.edu). For physical mail correspondence: USC-Marshall-CTM, 1149 S Hill Street, 9th floor, Los Angeles CA 90015.

The idea expressed in this newsletter are intended to stimulate conversation and dialog that will lead to a better understanding of our collective future. The opinions may not necessarily reflect the opinions of USC, Marshall, CTM or the wider CTM community.

## **GOT A BUSINESS, TECHNOLOGY, STRATEGY ISSUE?**

The CTM team is dedicated to working with its member companies to better understand the increasingly dynamic business world in which we live. We believe that companies must lead in order to prosper in a world where the threats and opportunities facing us are constantly evolving. Feel free to reach out to the CTM team via email at [ctm@marshall.usc.edu](mailto:ctm@marshall.usc.edu) if you would like to start a conversation.

## **ABOUT CTM**

*Founded in 1985, the Institute for Communication Technology Management (CTM) is the world's foremost institute at the intersection of technology and content and represents a powerful network of industry leaders involved in every facet of the digital media value chain. For more about CTM go to [marshall.usc.edu/ctm](http://marshall.usc.edu/ctm).*