

March 2018 @ CTM

THE DIRECTOR SPEAKS - Art, Entertainment, and Technology



The Knight Foundation is working to identify new ways to use technology to connect people and the arts in innovative ways. Often, one does not immediately think of the arts in relation to technology or a business but perhaps this is an idea worthy of consideration.

Technology is a topic of interest to the entire CTM community and it is embraced by all as an enabler of change. Technology-driven disruption can drive changes to a company's business models, business processes and more; these disruptors provide a means of addressing new opportunities and reacting to business threats as well. We have experienced how these disruptors have served to create new entertainment services, new advertising techniques, and even expanded understanding of the customer experience. What might the result be if this same kind of disruptive thinking were applied to the arts and changed the way we think about art?

The arts have traditionally been thought of as a means for the creator to share their perspective or emotions with an audience via a medium of their choice. However, with the advent of big data and technologies such as IOT, these experiences can now be personalized to the individual audience member. The creator could still share their perspective but through the incorporation of technology into the arts, the perspective could be targeted to individuals or groups. For instance, a film might self-modify its story-line or some background details to increase its resonance with the immediate audience or shift its context based on localized conditions. Perhaps a painting or a sculpture might include video images or light patterns that self-adjust based on sensor inputs. Art that can transform itself relationship to the viewer in very different from art that is intended to strictly convey the perspective of the creator. I believe such kinds of art represent a new art form, an art form that has a perspective that is very different from legacy artworks.

UPCOMING EVENTS

- **March 2, 2018.** [The Business of Entertainment's E2 Conference at USC \("The future of screens"\)](#).
- **March 9, 2018.** [Symposium on Foundations and Applications of Blockchain USC Viterbi School of Engineering](#).
- **March 22, 2018.** [The Los Angeles Cyber Security Conference 2018 at the Airport Marriott](#)
- **March 26-29, 2018.** [Smart Cities Connect Conference & Expo](#), Kansas City, MO
- **April 16-17, 2018.** [Asia Pacific Business Outlook Conference \(APBO\)](#), The LA Hotel, Los Angeles CA
- **April 25, 2018.** [Mobile/Connected Health Symposium](#), USC Davidson Conference Center, Los Angeles CA
- **May 4, 2018.** [ISSA-LA Information Security Summit](#), University City Hilton, Universal City CA
- **May 7-9, 2018.** [Accelerating the Innovation Economy in SmartCities](#), Santa Clara Convention Center, Santa Clara CA
- **May 7-11, 2018.** [Advanced Management Program \(AMP\)](#), is a unique program designed to give your high potential employees the skills they need to anticipate, prepare, and communicate in an increasingly dynamic and technology-driven world. The content will focus on market factors that have and continue to disrupt the market and the workplace. More details can be found in the [course brochure](#). Registration is open and can be found [here](#).
- **May 14-17, 2018.** [Internet of Things World](#), Santa Clara Convention Center, Santa Clara CA
- **May 16-17, 2018.** [Future Technologies for a Better Government](#), Cal Expo, Sacramento CA

IN CONVERSATION WITH STEVE CISTULLI, President & GM, North America, TCL Communication (TCT)



Steve Cistulli is currently the Executive Vice President of Sales & Marketing for a US-based consumer electronics (CE) distributor. The company boasts one of North America's largest distribution networks of electronics for big-box retailers, wireless carriers, and privately-owned retail stores. Prior to his current role, Steve served as the President & General Manager for TCL Communication Technology Holdings Limited (TCT) in North America; there, he helped guide the North America region to a top-4 ranking of mobile phone providers. The company was best known for its development and distribution of the Alcatel and BlackBerry Mobile brands of smartphone. In his earlier career, Steve led product development for other well-known CE companies such as Samsung, Panasonic, and Ericsson. As a member of the CTM family and a Trojan MBA, Steve believes that tech is a networked business and we are at our best when we work together. He was quick to accept when we asked him to share some pearls of wisdom with us.

1) You have seen a lot of water go under the bridge. The challenges facing Presidents and CEOs today are very different from those a decade ago. What are some of the issues that you think a current CEO needs to keep the top of mind that their predecessor might not have?

Consolidation and Inflection Points -- Consolidation within industries has always existed and being able to read the inflection points offered up by these trends has been critical for my own understanding of "where to go next", or, said differently, "what pitfalls should we avoid" as we move the business forward. Good things can happen in the inflection points; but, misreading them can be disastrous.

In the past, these industry sector inflection points were easier to read because they moved slowly and, largely, remained within their own sandbox; for example, mobility divested and [re]integrated chipset development over the past few decades. These evolutions were easier to read because we were part of the ecosystem driving the change. Today, as industry sectors merge, the consolidation [divesting and/or integrating] is becoming faster and more complex to visualize. A discipline of focus on the core [sector], with an eye to outside sectors [sometimes way outside], has become the new norm. However, once these new-breed, cross-sector, opportunities are identified I note that the integration effort is less homogeneous [than in the past]. Creating a management team that understands the diversity of the sectors and how to best merge them has been top of mind. People are still the biggest variable during the process and creating a strong, loyal, and efficient team remains critical to successfully navigating the inflection points.

2) At times it feels like the world is both globalizing and become more isolationist at the same time. How do you see these contradictory forces playing against each other?

Although the concept of crossing borders has always existed, the prevalence of the everything-connected world has brought a real-time view [with unprecedented granularity] to the movement of people and data. This unfettered, ever-increasing, connection has allowed us to better visualize what is happening in any corner of our world at any time. Our use of data has shrunken the distance that once separated cultures and economies. I often think that this “digital intrusion” into other cultures has caused some to take pause as they invite us into their lives. And, so, over time, the cultural divide once defined by distance comes front and center to protect a person or countries core values. It is the sense of the “digital intrusion” that I feel creates the sense of isolation in an otherwise, always-on, fully connected world.

The impact of the “digital intrusion” has side effects. The impact of everything-connected, always-on, is best seen in what used to be considered merging countries. Over the past few decades China, a massive [standalone] economy and one with scale like no other country in the world, has been catching up with other developed nations in skillset diversity amongst its population. Where, once, many thought of China as a closed nation, a closed economy, China is now a leader in many areas of technology, manufacturing, and intellectual property. China is no longer a nation trying to catch up. It is a nation prepared to fast-track government support of medical and technological breakthroughs. It is a country ready to export technology and drive innovation. Digital intrusion, among other factors, has been a driving force for globalization.

3) Can you share a nugget of wisdom with us; something you wish you would have understood or learned much earlier in your career?

Using the analogy of a pond and lily pads – looking back, I see that each [work-related] opportunity I encountered was a lily pad within a pond. The pond defined the sector, the job defined the lily pad. Early in my career, I was an engineer working within the defense industry. The defense industry was my pond and my role working on weapon systems defined the lily pad. Later, I moved to another pond, the wireless industry. Once inside this pond, I was able to freely move from lily pad to lily pad, build my knowledge base, build my relationships, and moving up the ranks. Thanks to technology the distance between us [all] shrank, knowledge became more widely available and industries consolidated. With this evolution, the expansion and blending of the ponds were inevitable – we are no longer isolated by sector. People from the film sector want to understand and use the technology from the connected-everything sector. People within the Artificial Intelligence (AI) sector want to move across and visit the lily pads within the banking sector. Soon, the blockchain teams want to work with the AI teams and drive a new Fintech company – each of these sectors is a pond of its own, yet, when properly blended the combination creates new opportunities. Understanding that one should not limit themselves to a single pond and that blending industries is the norm is a key takeaway. This sounds simple, but, over the long run, and in the face of the daily grind, this simple analogy can add perspective and refocus you. Creating a core competency is critical, yes. Building a network of trusted colleagues and industry contacts is critical, yes. Putting the time in to gain the respect across industries is critical, yes. But, understanding that there are multiple ponds and that these ponds will merge can be a critical tool in mapping out your long-term success story.

4) Industry pundits are often a reflection of common wisdom. Can you point to a couple of opportunities and threats on the horizon that are underappreciated for their impact by mainstream pundits?

I often use a common theme to discuss today’s tech-sector trends, ABC – AI, Blockchain, and Connected-Everything. Where AI will drive the “value of data”, Blockchain will drive the “movement of data” and Connected-Everything replaces what we have traditionally known as “mobility”. Each of these topics is talked about across the globe in great detail and, quite often, in isolation [AI taking jobs, BC obfuscating data, IoT in healthcare]. I feel, however, what is not always discussed, and which represents the greatest opportunity [and threat], is the architecture [and the architects] that bring these elements together. When combined, the opportunity to control the end-to-end experience of a person’s daily life [or business, or government] comes into focus. The architects of this experience can lever control in a manner that suits the need of the creator, and, today, there are few barriers to entry for the architect willing to put in the time. The power of ABC, when used for mal intent, can cripple governments, industries, and individuals. There are companies today that understand this and are bringing these elements together – Facebook, Google, Amazon, Alibaba, to name a few. Going one level above the discussion about the standalone industries to better understand the glue that binds these technologies together and will drive our lives is not often discussed. Who are the architects? What are their intentions? How will each industry sector and government use the power of ABC over the next decade to better humankind?

THINKING AMP: The Coming Technology Tsunami

One of the areas we watch closely at CTM is the evolution of technology. We’re witnessing a family of technological innovations at the moment that we think you should pay attention to. All fall under the aegis of Digital Transformation, a theme we’ve written about before in this column.

The first of these innovations that will soon hit the streets is the cluster known as virtual or augmented reality. We first saw this with the explosion of interest around Pokémon Go, a game that overlaid virtual ‘things’ on a view of the real world. But imagine the following: A construction company needs to dig up a street in a busy downtown area. Their concern would normally be about disrupting in-place, buried infrastructure. But with augmented reality, the project manager puts on 3D viewing goggles, engages the application, and is then presented with a virtual, three-dimensional view of everything that lies below them, everywhere they look. Digging up the street just got far less invasive—and a lot more accurate.



The second area we're closely following is the triumvirate of robotics, machine learning, and artificial intelligence. Let's start with robotics. For most of us, when we think 'robotics,' our minds go to those quasi-human creatures we saw in movies like *I, Robot*. But don't be too hasty: a robot is defined as a machine that is capable of executing a complex series of actions automatically, typically programmable via a computer. By that definition, Siri, talking to you through your phone, is a robot, as is Alexa, Google Assistant, and so on.

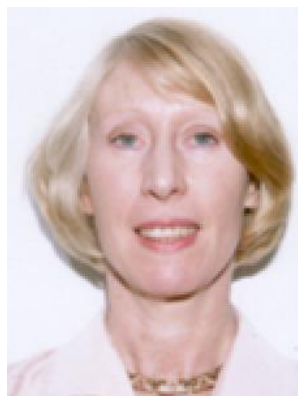
The second technology we're following in this group is artificial intelligence, typically a cloud-based computing environment that runs sophisticated learning algorithms capable of refining the robot's responses to cues over time.

This leads us to the third technology in the triplet: machine learning - the ability of the robot to adapt its actions, its responses to stimuli, if you will, as the environment it operates in changes. This collection of technologies is fascinating to us because it's moving forward (in terms of development) at a breathtaking pace, sometimes outpacing our ability to keep up with the advances. Just a few months ago, an intelligent system being developed at Facebook was shut down because researchers discovered that it was rewriting its own code to make itself more efficient. Shades of Skynet.

We're watching advances in the world of telecommunications. 5G wireless isn't here yet but when it starts to be deployed as an adjunct to 4G LTE, that's when we'll see autonomous vehicles kick into high gear. They can't operate without it, because the cars on the road have to talk to each other to avoid collisions, and the only way to transmit such massive volumes of data in a short period of time is with a technology like 5G.

There are other technologies we're watching, but those are the most important for the moment. Stay tuned—we'll update the list as new ones catch our attention.

READER CONTRIBUTIONS - The "Skinny" on Skinny Bundles



By Josette Bonte, Chief Strategy Officer and Head of Research, USC CTM

In the summer of 2012, we forecast in our "Future of Media" Research that the Multichannel Video Programming Distributors ("MVPDs") that include satellite, cable and IPTV service providers would start offering reduced size bundles of TV channels in response to market demand. Flash forward to 2018 and indeed, both Millennials and Generation Z consumers have become so used to consuming mostly over the top ("OTT") video services that they have significantly cut or shaved the "cord" that connected them to the full video bundle. "Appointment TV," once the mainstay of cable TV, is no longer satisfying these consumers, in spite of complementary DVR and VOD offerings. Younger consumers currently experience a disjointed relationship with their video services: they flock to new shows, not to new networks or TV channels. To quote a former Time Warner Executive who we interviewed: "the traditional bundle is crumbling under its own weight." We have entered a confusing video services environment where everyone is in delving into everyone else's business. On the one hand, some the established OTT video providers like Hulu and YouTube have deployed packages of virtual "cable" channels, while the MVPDs themselves are fearlessly cannibalizing their own business by presenting "skinnier bundles" of channels that are

offered virtually over broadband. Some of the most famous examples include Dish's Sling, DirecTV Now's assortment of small bundles and Comcast's Xfinity Instant TV.

Of offense and defense: The deployment of skinny bundles takes the MVPD/OTT competition to a whole new level. MVPDs use these deployments not only to compete for head-on with OTTs' virtual offerings but also as a tool to prevent cord cutting and attract new subscribers who they might in time hope to upsell to their traditional bundle. For OTTs, a skinny bundle of broadcast channels is a competitive tool to steal subscribers away from MVPDs and become a one-stop comprehensive video destination.

But are all skinny bundles a panacea? On a positive note, Skinny bundles offer entry-level packages of popular channels at a desirable price point; the "Sweet spot" pricing opportunity is between \$25 and \$75 per month. For OTTs, they offer an attractive complement to SVOD programming, while for MVPDs, they act as a retention tool for consumers who are about to disconnect, as mentioned above. However, when you start dissecting the value proposition of skinny bundles, their shortfalls appear obvious. Small bundles do not equate a la carte access to individual shows or channel selection, which is what our research shows consumers really want. Consumers value video packages based on the specific channels included, not on the number of channels. Furthermore, most skinny bundles do not feature enough variety of programming to please all family members, especially when Millennials start having children and need to satisfy that demographic group.

From an industry standpoint, skinny bundles present business challenges to operators and networks alike. Companies like Disney have must-carry channel requirements that must be adhered to (i.e., ESPN comes packaged with the Disney Channel) and challenge the ability to create an attractive reduced bundle. Similarly, the carriage fees charged by networks to virtual MVPDs like PlayStation Vue are typically higher than the fees large MVPDs pay to carry the same networks. The networks that have leverage by virtue of their ratings can dictate their own financial terms or opt out of skinny bundles altogether. Network groups or individual networks with strong brands have the negotiation leverage to continue to insist on being included in the basic MVPD Tier, which guarantees wider distribution and ultimately, their viability.

From the standpoint of content financing, the industry needs the per-sub fee of the big bundle to finance the film/TV production machine and enable the production of a breadth and depth of content. The advent of the skinny bundle ushers in a shake-up where some channels or network groups may not survive, as they may no longer have a distribution outlet to consumers as part of the big bundle; in time, these ramifications could be deleterious to the entertainment industry as a whole.

THE I³ CORNER:

In February, I3 Consortium was named as one of the action clusters under the Data Governance Super Cluster of the NIST's GCTC program. The GCTC program is intended to facilitate the accelerated realization of Smarter Communities by breaking the larger problem set into a series of component issues where various entities can work together and share experiences in order to make progress collaboratively. <https://pages.nist.gov/GCTC/>. The efforts of the I3 Consortium were seen as unique and contributive to the larger body of IOT work that NIST is pursuing. Since I3 is working in an opensource environment which allows the results of the program to be easily shared, I3 was established as a focused action cluster under larger NIST program. The interest that the I3 platform is generating is a testament to the business research that was carried out by CTM which underlies many of the I3 platform concepts. It is interesting to think that the complex problems on our horizon might not be strictly business or engineering problems, but problems that must be approached in a multidisciplinary fashion. While a new technology or a new business process might be interesting, it may be that when new technologies are used to rethink and disrupt established business processes is when true breakthroughs become possible.

READINGS FROM THE EDITOR'S DESK

- Future connected device efforts will be less focus on the device or the application; instead, the focus will be on the new business models the device/application enables. ([The future of the connected home isn't connected toothbrushes – it's entirely new business models](#))
- Fast growth companies have defined data strategies that make them data buyers, data sellers, or both. A successful data strategy requires 1) processes to maximize value realization, 2) partners when needed, and 3) a strategy that transforms the company as a participant in a data-centric world. These companies did not append their data strategy to a legacy process but instead reimagined the business. ([Fueling growth through data monetization](#))
- Los Angeles has won the "What Works Cities Certification Gold Certification" from Bloomberg Philanthropies. The award recognizes the work LA has done and their commitment to becoming a more efficient data-driven city. ([These 9 Cities Are Certified Government Data Pioneers](#))
- 5G is sometimes talked about as the 'next' wireless technology; an incremental improvement in performance. However, 5G is much more significance than a standard technology upgrade; it represents improvements on a myriad of frontiers at the same time. ([What is 5G, and why it is such a big deal](#))
- Most digital strategies fail to reach their full business potential. The top 5 reasons why these digital strategies often fail include 1) Fuzzy definitions. 2) Misunderstanding the economics of digital. 3) Overlooking ecosystems. 4) Over-indexing on the 'usual suspects'. 5) Missing the duality of digital. ([Why digital strategies fail](#))
- Drucker said, "Culture eats Strategy for Breakfast." Over time, that sentiment has evolved to imply that "Culture eats Technology." Regardless, culture is the prime determinant of success and changing a corporate culture is one of the hardest tasks one might ever undertake. ([When culture eats software for breakfast, lunch and dinner](#))
- Dickens's Tale of Two Cities begins with "It was the best of times, it was the worst of times." After reading about the evolving healthcare system in Pittsburgh, one might pause to consider whether that sentiment applies to the Pittsburgh healthcare situation. ([Two visions for the future of health care are at war in Pittsburgh](#))

CTM RESOURCES

CTM has a long history of making topical and thoughtful information available to the CTM Board so they can better guide the evolution of CTM (and potentially internalize this information within their companies as well). That said, the CTM community includes many who are interested in topics related to how technology and business intersect so they can capitalize on nuanced opportunities brought about by these disruptive influences. In support of the larger CTM community, we are making a select set of interesting documents available to the this vibrant and growing community.

[Platforms, Real-Time & Partner Management, and Collaborative Innovation](#). CTM has been collecting a statistically significant amount of data from companies that were growing much faster than their peer competitors to better understand the organizational processes that enable technology to drive business process breakthroughs. This report investigates five specific areas of interest, covering 1) how leaders have evolved their operational practices to incorporate digital platforms in their communications programs, 2) how companies are evolving to become real-time companies in the eyes of their customer, 3) how companies actively manage their technical partners in a networked age, 4) how collaborative innovation between functional areas can create new opportunities, and 5) how open innovation practices are allowing firms to outpace their competitors in an increasingly challenging market.

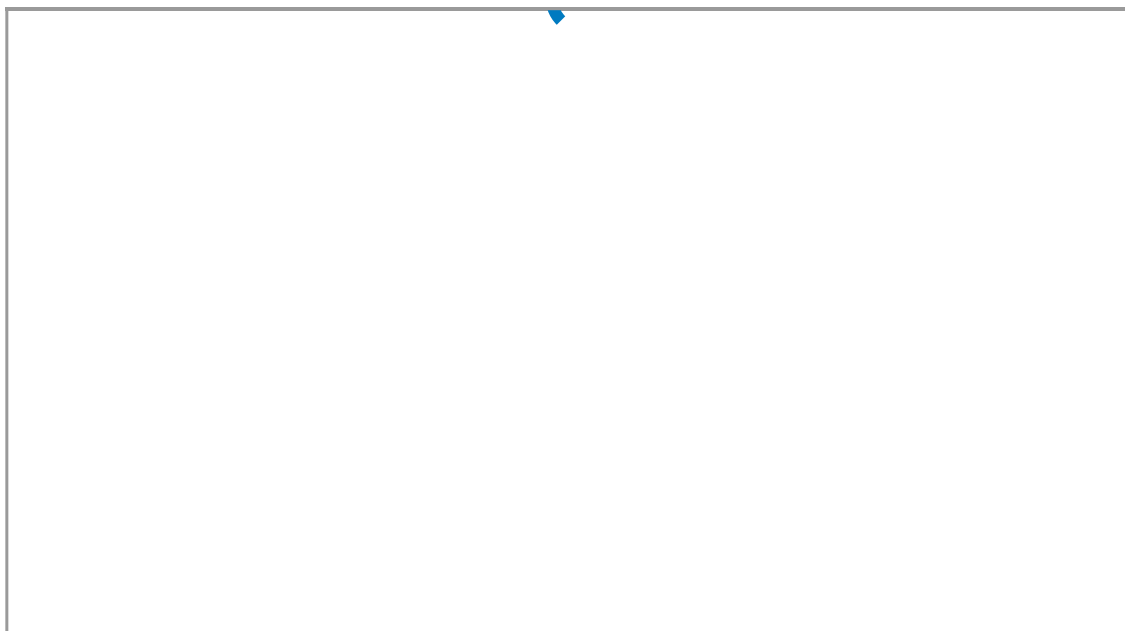
[Privacy, Security, Analytics, Supply Chain & Teamwork in Modern Ecosystems](#). This research targets the realities that businesses face and that serve to discriminate between determinants of success and failure. This research investigates six specific areas of interest that directly impact the bottom line. These areas include 1) how growth companies seek to actively manage the tradeoffs between speed and accuracy, given that technology can be optimized along either dimension, 2) how issues such as privacy, security, and trust are working to redefine our relationship with the customer, 3) how analytics are allowing some data-driven businesses to prosper while otherwise talented companies seem to flounder, 4) how management efforts to organize geographically-distributed tasks fail to properly shift gears when the programs move between "create" and "review" states, 5) how emerging technology impact supply chains to created undermine historical competitive advantages and create new opportunities for expansion, and 6) how expanding innovation ecosystems create unique challenges that can only be addressed with nonlinear thinking.

[Future of Media Program: Evolving Revenue Models](#). The media industry is currently undergoing a radical transition that has been accelerated over the past three years. At play are deep changes in the way consumers view filmed entertainment and how the industry makes money. In this report, we look at the evolving business models for media monetization from advertising to subscription and transaction. We also study the impact of new and emerging business models on the economy of the media industry. Special attention is paid to Millennial consumers who are estimated to outnumber non-Millennials by 2030. This generation is likely to greatly impact the growth of new business models going forward.

Internet of Things (IOT) Model. The Internet of Things (IOT) is a collective term that includes a large number of different IOT devices and different applications focused on different use cases. CTM has undertaken a large IOT modeling program to help the industry cope with this issue by improving their ability to consider the impact it might make to a large and complicated market. The effort began with a market research program to understand the price elasticity of more than 50 different IOT opportunities. The bandwidth from these applications was modeled as network bandwidth in order to characterize the traffic volumes that play a critical role in determining the cost characteristics of a specific IOT application. Based on the model that CTM has developed, users will be able to identify profit pools within the larger IOT market, they will be able to test how changes in product pricing will affect product demand and they will be able to test how different functional characterizations impact traffic flows and operating costs. Effectively, the modeling tools allow users to adjust the parameters that drive the IOT market so they are reflective of their personal view of market evolution. This will help determine what actions that can take to turn these opportunities into business results.

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 below or [on our home page](#). A voluntary subscription would be appreciated for those that want to give back and help grow the CTM community. 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.



For physical mail correspondence: USC-Marshall-CTM, 1149 S Hill Street, 9th floor, Los Angeles CA 90015

Got a Business or Technology Issue? A Strategy Question?

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 at ctm@marhsall.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.