USC Marshall School of Business — Institute for Communication Technology Management (CTM)

April 2018 @ CTM

THE DIRECTOR SPEAKS - "Expanded Your Customer's Experience"

As of late, there has been a marked increase in the number of articles written about the importance of the customer experience. These articles reinforce the point that the customer's journey, their experience with a specific company, has to be understood from beginning to end. A customer's journey may start when they discover a company's website, it includes the ordering process, the customer's experience with the billing department, the experience with the product/service, and customer support. Each of these waypoints shapes the customer's view of the company and ultimately determines whether the customer wants to engage with the company long term. We could not agree more, in today's networked world a customer has many more touchpoints with a company and each touchpoint is an opportunity to shape the customer's perception (for good or bad).

For each company, it would be interesting to strategically question where the customer journey starts and where it ends. When most people think about sporting events, most of the focus on the customer experience starts when the fan shows up at the arena and ends when they leave. Perhaps, a strict focus on the arena may be a missed opportunity. Fans buy their tickets weeks in advance and their excitement builds as the event date approaches. The time leading up to the event could be a great time to reinforce the fan's excitement and personal connection with the team they will be seeing. Similarly, the time after the event could be a great time to continue the fan's positive experience and begin planting the seeds that might lead to a follow-on ticket sales. If we think about an event as the crescendo to a process that began long before the event and continues long after the event conclusion, our view of the customer journey is markedly different.

UPCOMING EVENTS

- **April 12-13, 2018.** Internet of Things Summit, Parc 55 San Francisco – A Hilton Hotel, San Francisco CA
- **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

If you have an event that you would like us to include in our newsletter, please send an email to ctm@marshall.usc.edu

IN CONVERSATION WITH LILIAN CORAL, Knight Foundation Director of National Strategy

As Knight's director of national strategy, Lilian Coral manages the national portfolio and focuses on the development of the foundation's Smart Cities strategy. She came to Knight from the City of Los Angeles, where she served as chief data officer for Mayor Eric Garcetti. In this role, she led the mayor's directive on Open Data beyond the lens of transparency and towards his vision of a data-driven Los Angeles through the management of the City's Open Data program, the expansion of the use of data science and analytics, and the development of user-centered digital services. Coral led the development of the GeoHub, a first-of-its kind data management solution for integrating geospatial information across the City of Los Angeles' 41 departments, and oversaw the publishing of 1,100 city datasets and APIs, the management of five portals of operational and financial data, and the roll-out of 15+ digital services, applications and public facing dashboards.

Smart Cities is one of those topics that gets a lot of press but it is often not precisely defined. What does 'Smart Cities' mean to The Knight Foundation?

We define a 'Smart City' to be a city that is striving to harness digital technology and intelligent design to create sustainable solutions to that city's key challenges. More specifically, the Knight Foundation believes that by harnessing the growth in digital technology, cities will enable more informed and engaged communities and we want to encourage technology enabled efforts that increase responsiveness, connectedness, and engagement with a city's residents.

Democracies were originally created to enable citizen driven governments but if we think about smart cities as simply automated cities we risk losing the voice of the citizen so it is important that we look outside that box.

Knight is taking a leadership role in making sure that the citizen's voice is not lost in a conversation that often revolves around technology. We believe technology can and should be used to increase responsiveness to citizens, to increase citizen connectedness, and increase citizen

engagement. The way we look at things, technology should not only make governments more efficient, they should also make governments more effective for the citizens they serve.

Trying to help governments become more effective is much more aspirational than helping governments be more efficient. Efficiency implies improving an understood process but effectiveness implies developing an understanding of changing citizen expectations.

The Knight Foundation is currently targeted on four specific points that we think have to be considered as primary aspects of any smart-cities conversation. First, we have to move toward making more use of real-time, crowd-sourced data to help drive the government decision-making processes. Second, rather than looking at technology as a point-solution, it needs to be consider a strategic enabler that drives continued value all through the program planning, design, and delivery processes. Third, technology's use should not be restricted to city operations; technology should also create data that empowers resident decision making processes. Finally, smart-city technologies should allow appropriate networks to form between governments entities so we can share practices, experiment, lean from each other.

Smart-Cities conversations have seen a lot of activity as of late. This could be interpreted as a sign that a lot of progress has been made and coming to market or this could be interpreted as a sign that there is a lot more work yet to be done. Which is it?

A lot of significant successes have been achieved but at the same time, there is a lot of work remaining to be done. There are many case studies that show the power of what can be achieved with smart cities technology but these case studies also serve to highlight how much more we can achieve. If we are able to redirect the smart cities conversations back to the residents in a way that successfully engages them in the process, we can use the technologies at our disposal to drive changes to the community that amplify the voices of all the citizens that make each city a unique and special place.

THINKING AMP: How RADAR is Changing Retail…and Everything Else

I'd like to talk about RADAR and barcodes—trust me, there's a method to my madness.

Radio Detection and Ranging, aka RADAR, was invented in Germany in the early 1930s as a tool to detect ships at sea. Before long, the Allies created their own versions of it, because they realized that if it could not only be used to detect ships, it could also be used to detect enemy aircraft. Once the war ended, an explosion of technological innovation occurred and RADAR evolved from its military roots to become a commercial product. It found itself a home in the world of shipping and aviation, allowing businesses that embraced this technology to know, at any moment, where their ships and aircraft were, which way they were moving, and when they could be expected to arrive at their destinations, and so on.

The first barcodes were used in June 1974, when a grocery clerk scanned a ten-pack of Wrigley's Juicy Fruit gum. Not long after, barcodes began to appear on everything, allowing shippers, retailers, and logistics specialists to track individual products and pallets of product. The companies that embraced this technology could dramatically speed up the customer checkout process while collecting massive volumes of data that could be converted to customer insights.

The connective tissue is the point that technologies that allow companies to improve operational efficiencies by enhancing situational awareness are transformational. Now, there's a new technology in town: the Internet of Things (IoT). IoT evolved from the machine-to-machine (M2M) automation movement to enable situational awareness. IoT, along with Big Data and Analytics, is perhaps the biggest technological game changer we've seen in over 50 years. IoT allows us to track, in real time, the movement and activity of people, animals, environments, vehicles, and even weather patterns. It is changing how we deliver healthcare and education. It is making transparent and participatory government possible. It is allowing us to predict and respond to a crime before it actually happens. It facilitates the creation of smart cities, smart universities, smart cars, and smart hospitals. It is changing the face of retail and the delivery of customer service. And it is just getting started.

CTM's Advanced Management Program (AMP) has always served to make high potential employees of technology impacted companies more successful by considering how emergent trends can disrupt the status quo. We believe that IoT will be so disruptive that the May AMP program will further increase its focus on IoT ecosystems, and what it means to each participant and the company they work for. When participants go back to work at the end of the week, they will each have a unique vision for bringing the best that IoT and it's technological cousins offer to the future of their company, their industry, and themselves.

THE I^3 CORNER:

The I3 Consortium has been named as an action cluster under the NIST GCTC program (Global Cities Team Challenge). The GCTC program is a collaborative effort where different action clusters work on groundbreaking IOT concepts in a way that allows the experiences to be shared over a large network of communities seeking to accelerate progress in the IOT space. The I3 is tasked to work on data governance issues in environments where there is no single implementation authority – situations where a collaborative effort is needed to assemble rivers of IOT data from a series of independent data streams.

The I3 Consortium is still in its formative stages. To date, we have created a set of by-laws and a layered membership program that should allow large and small participants to contribute to the opensource program in a meaningful way. During the month of April, we will be working on a membership agreement and an intellectual property policy.

READINGS FROM THE EDITOR'S DESK

- Technology is a tool and companies want to give their employees the tools they feel their need to be successful, but business success does not come from the tools but from how the companies use the tools at their disposal. Is business fit – digitally?
- Many HR departments are beginning to test Artificial Intelligence (AI) to aid in the HR decision making processes. Supporters see opportunities for making decision making smarter and more objective while detractors worry about bias, algorithmic integrity, and employee moral. What's on Your Mind? Bosses Are Using Artificial Intelligence to Find Out
- There are 6 or more major technologies that will change the way we interact with technology. The most significant of these technologies includes Virtual Reality (and Augmented Reality), Voice Recognition, Machine Learning, Chatbots, Facial Recognition, and Biometrics. Perhaps Computer Vision should be added to the list as well. Emerging Technologies That Will Transform Experiences
- Agricultural businesses are being redefined through the use of IOT. Big Ag is trying to use IOT to improve economies of scale while smaller farmers are using IOT to better target niche markets and to create agricultural communities that can compete with large businesses. An exploration of how new technologies will reframe our understanding of the world.
- The 4th Industrial Revolution will dramatically redefine manufacturing processes. Generative Design Techniques, Reductive Discontenting, and Assembly Consolidation will serve to reduce manufacturing costs while increasing product quality. The Way We Make Things is about to Fundamentally Change.
- A "Technology Vision 2018" report serves to call out key targets issues that will require increased attention during the coming years. Topics like Citizen AI, Extended Reality, Data Veracity, Frictionless Business, and Internet of Thinking serve to focus tech trends to drive business results. Intelligent Enterprise Unleashed
- Uber's testing of self-driving trucks is a step forward for tech but it should also sound warning bells for the long haul transport companies. There are about 3.5M trucks and truck drivers on the road in the US that could be disrupted by these trends. Uber's Self Driving Trucks are Making Deliveries in Arizona
- The sharing economy continues to expand and raise questions. Rental Car regulations were created to make traditional businesses better. Have the legacy rules become unnecessary or, should they be applied to both traditional AND the shared economies? AirBnB for Cars is Here. And Rental Car Giants are not Happy.

READER CONTRIBUTIONS - "How Artificial Intelligence(AI) Can Impact the College Decision Process" by Steve Cistulli

Actions of the early Luddites provide, at least, one side of the argument supporting those who think that the advancement of technology threatens our workforce by replacing jobs with machines. Today, neo-Luddism conversations trend towards phrases like Artificial Intelligence (AI), Deep Learning, and Internet of Things – the gins of modern time.

Recently, at a business dinner with a fellow CTM Member, during a deeply technical discussion around the cost-per-bit of data traversing the complicated architecture of newly deployed 5G networks (I3-IOT), the conversation, somehow, pivoted away from technology and onto our college-aged children. My colleague and I started to discuss the decision-making process used to choose a college major and how AI could impact that process. My own education included an undergraduate degree in Electrical Engineering, followed by an MBA (at USC), while my dinner partner had an undergraduate degree in Fine Arts, followed by an MBA. I lamented over the fact that my son was already enrolled with an EE major and wanted to follow in my footsteps, and, that I now needed to convince him that AI was changing the landscape of our future workforce and that there are alternatives to the arcane path of an electrical engineer delving into the black magic of antenna propagation patterns. I pointed out that AI, IoT , and surrounding technologies, could be the cotton gins of our time. Computer Science may be the better degree and "Manufactured Intelligence" may be the new job description for a new kind of teacher.

With the emergence of manufactured intelligence, computer scientists will become our new "teachers" (albeit with higher wages) and a new category of education will emerge. The job description will likely no longer include statements like "the development of young minds" or have requirements that include "teaching according to the educational needs, abilities and achievement of the individual students and groups of students". Rather, it will seek those most skilled with an "aptitude in developing learning patterns, training machines and an understanding of how to efficiently manufacture intelligence" for the purpose of training the next generation of "T-800's".

Work with the CTM and I3 has brought focus on technologies that impact our businesses, and, it appears, our family's decisions. Among other things, AI has opened up opportunities for a generation willing to see a bit farther down the road and willing to educate themselves on the advantages of emerging technologies. When put into context, the opportunities created by AI are limitless. With increases in computing power accompanied by the abstraction of old school bit-flipping AI opens up new fields of study for college students and provides paths to good paying jobs in multiple market verticals like healthcare, smart cities, and even teaching.

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 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, 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 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 our home page.