USC Marshall School of Business — Communications, Technology, and Management (CTM)

December 2019 @ CTM

THE DIRECTOR SPEAKS - Privacy on the Legislative Agenda

There have been recent proposals for new privacy legislation from both the Democrats and Republicans in Washington and these national proposals are being complimented by a different set of proposals popping up in various state legislative houses throughout the country. California is often cited as being a privacy legislation bell weather given that the California Consumer Privacy Act (CCPA) goes into effect Jan 1, 2020. (What is often left unsaid is that California already has about 150 privacy related laws already on books which serve to compliment CCPA). One of the issues that is often cited as being a key issue in these negotiations is whether a national law would overrule individual state laws. Interestingly, a critical issue that is often dismissed is the fact that any such legislation is meaningless unless funds are allocated to enforce the passed legislation. The United States government is notorious for passing legislation and then under funding the required enforcement mechanism. Moreover, enforcement of any digital tech law is complicated, time consuming and therefore expensive.

While many cite Europe's GDPR (General Data Protection Regulation) as a model for other privacy regulations, the European Union looks at GDPR as a floor, a minimum expectation of privacy and individual countries are able to enact more restrictive measures if so desired. Canada, a country that has their own version of GDPR, called PIPEDA (Personal Information Protection and Electronic Documents Act), also allows their Provinces to enact stricter regulations as the Provincial governments deem appropriate. In the United States, the approach has been different in that we have encouraged the adoption of industry specific privacy laws and technology specific laws which could provide more protection to citizens than GDPR were these existing laws to be systematically and uniformly enforced. For example, HIPAA (US Health Insurance Portability and Accountability Act) specifically limits privacy issues in the health care industry and can be compared to the Gramm-Leach-Bliley Act (GLBA) or the California Song-Beverly Act both of which relate to privacy in the credit industry. California even has specific regulations related to automated license plate recognition systems and Drone Privacy Specific Regulations.

It is fairly certain that additional privacy laws are inevitable but at this point the specifics of such legislation, a schedule for passage, and the impact of any challenges makes it impossible to predict the future in this space. It should also be noted that many privacy related issues carry with it data security requirements in that privacy cannot be assured unless a sufficient data security system is also in place. Many of these requirements demand that companies take reasonable measures to protect their data from possible threats. While there are many variables at play, it seems fairly certain that companies should prepare for a day when their efforts to meet that reasonable requirement are challenged in court. A key first step in being able to justify whether a company has taken reasonable steps requires the company to produce a documented privacy and security policy and then produce documentation that proves the company is in compliance with their own policy. The reality is that most companies would be hard pressed to produce a complete inventory of their data repositories, let alone being able to prove they actively engaged in protecting that data. Now is the time to put a comprehensive data management program in place as this will become an expectation as these proposed legislative actions move toward becoming the law of the land.

UPCOMING EVENTS

- **Dec 10-11, 2019.** Data West Conference, San Diego CA
- **Dec 9-13, 2019.** (Object Management Group) Technical Meeting, Long Beach CA
- **Dec 13, 2019,** 3rd SoCalBio Digital Health Conference: It Is All About The Analytics, Santa Monica, CA
- **Dec 19, 2019**, I3 Face-to-Face Meeting, USC Downtown Building, Los Angeles CA.
- **Jan 21, 2020,** I3 Workshop/Conference, Doheny Library, USC Campus, Los Angeles CA

If you have an event that you would like us to include in our newsletter, please send an email to manager@i3-iot.net

IN CONVERSATION WITH Paul Hoekstra, SFMTA

Paul is an independent strategy execution consultant who specializes in helping technology organizations make the leap to become the driver behind high impact customer centric service improvements. He has built and led the Service Strategy and Planning team at Oracle and helped Cisco with the transformation to become much more software (DNA) and service focused.

A little over a year ago, the San Francisco Municipal Transportation Agency (SFMTA) CTO asked him to help establish a new service execution framework based on the ITS Architecture and System Engineering. This is well underway now and Paul is now leading the Proof of Concept to use advanced technology to understand traffic flow, obstructions to the flow, and curb management. This is the first step in a much more ambitious vision San Francisco has to reduce accidents, improve public transport performance, infrastructure utilizations, and reduction of greenhouse gas emissions.

When people first think about "transportation" they tend to focus on components of the larger issue such as roads, buses, trains, etc. How would you describe "transportation" and what are the big picture issues faced by the industry?

What is absolutely critical for municipals to stay competitive is to take the perspective of the customer, in the San Francisco Municipal Transportation Agency's (SFMTA) case, the resident, worker and visitor in San Francisco. This sounds obvious, but when you list to various organizations providing pieces of how the people actually move throughout the city, how they plan, operate, receive budgets, and their increasing competition (city vs. city and transportation service within the city), the picture becomes very complex very fast.

What we are transitioning to within SFMTA is to deeply understand what our customers need and want, then define the multi-modal transportation services meeting the needs. Not all wants can be met for everyone, but the needs can taking our challenges in space, budget, assets, and unique San Francisco culture and politics into account.

This is a high level, fundamental shift we are trying to achieve going from individual divisions to a much more integrated approach.

The other big issue we are trying to tackle is the promise of technology. Many new developments have emerged but piecing them together and scaling is still not available of the shelf. We are all very aware of the promise of technology and several pilots are underway to proof out use of advanced technology like LiDAR to collect detailed real-time traffic flow information, but how to optimize the flow of traffic based on priorities, constrained based planning, dynamic recalculations and able to set traffic lights remotely does not exist yet at a scale to optimize all traffic flows at least in the main corridors. Many vendors have platforms, but a system that can be bought off the shelf and configured does not exist yet as far as I've seen. Huge opportunity (18000 cities in the USA alone), but I'd love to talk to the company who would like to co-develop.

Because transportation projects are expensive, necessary, and provide a community benefit they are often government funded but the industry is exploring different business models that provide alternate funding models. What new business models do you think are most promising?

What I would love to see develop more is the realization of the value of the data. Government agencies collect large amounts of data which is often given away for free. Companies like Google capitalize hugely with products like Google Maps showing public transportation travel predictions. We, as the taxpayers, have invested in this infrastructure and the return can't be contingent on us giving a company more data when and how we want to travel, nor drive up the stock price.

Government agencies should consider different data licensing models, allowing new service development for free, and when going to production, a form of payment. This would provide a return on the investment and the opportunity to fund further investment in new technologies focused on proving better services to the citizens, integration of data, while at the same time fueling development of new businesses.

As transportation systems become more integrated, they need to shift from insular operating models that support specific modes of transportation to more systemic operating models. This seems like if could be a seismic transformation. Thoughts?

If you mean with a seismic transformation people within the transportation industry move their thinking from "operating the vehicle" to "how do we better serve the people sitting in the cable car," then yes, that is the big one. To deliver that, integration and cross-functional / cross-agency initiatives will be the new norm. From an operational perspective, automation will support the multi-modal travel, but I foresee a need for a central transportation center managing traffic flow far beyond the current train control and bus dispatch.

Technical configurable solutions will become available, cities will continue to grow, people will demand safety in the streets, and maybe we'll see self-driving cars at scale in the next decade. The streets are not going to be made wider, so we have to realize optimization of the use of existing infrastructure. Data is going to drive all this, so we'll have to find the people who can interpret and find the actions to take from that data and leverage AI to optimize the use of the limited space.

As the transportation system becomes more tech-centric, one could argue that this will drive the transportation industry to become more agile (relatively speaking). We are already seeing greater use of field trials and proof-of-concept projects – what else might we see in the future?

Yes, that is absolutely true. In San Francisco we're conducting proof of concepts to proof out technology has reached a state it actually works in the real world. What this means is that we are delivering value in terms of optimizing flow by adjusting signal phasing, acting on near misses observed instead of collisions. This requires us to go deep in the data, understand what is noise, sift out actionable insights. All this while we're installing new technology we apply to use cases maybe for the first time.

As a new norm, experimentation is going to be key. This is obviously not possible with large projects like digging a new tunnel for the light rail, but e.g. implementing new technology in one corridor and compare to other corridors, then make small adjustments in street lay-out and signal phasing, do we see less accidents and near-misses? Did the average speed increase for public transportation and biking, while reducing speed for cars, but with less stops (reducing GHG emissions)? If so, how do we package this up and replicate across the rest of the city?

Secondly, we do have to unite and realize that an integrate approach is the most beneficial path forward. All can get what we need, but maybe not what everyone wants.

THE I³ CORNER (I3.usc.edu)

The I3 program continues to make strides forward. We have now posted the I3 videos to the I3 web site (I3.usc.edu). The engineers are reporting that they 'could' release R1 to-public today with quality on par with other opensource R1 releases. Instead, we have opted to hold back in order to make a few final refinements to the documentation and to put some final enhancements in place.

We have been working on creating a virtual I3 sandbox that can be utilized by I3 members for development, testing, and field trials. The engineers have a design in place and hope to have the sandbox up and running in the first quarter of 2020. Running a virtual sandbox requires the use of external cloud resources (not run on the USC internal cloud) and a support team to stand behind the sandbox. We are working to sort through these issues as well and expect to have some of this resolved before the Dec I3 meeting.

Speaking of which, please mark your calendar. Our next I3 face-to-face meeting is Dec 19 and the USC Downtown building (1149 S Hill Street, Los Angeles 90015). The Eventbrite link for that meeting is https://www.eventbrite.com/e/i3-consortium-dec-2019-meeting-registration-79658104535. This will not be a long meeting (gather at 12:30 with meeting start at 1:00) with the agenda is focused on our final check off before we release V1 of the software to the public and preparation for our January Workshop/Conference.

While you have your calendars out, be sure to block out Jan 21 for the next I3 Workshop/Conference. You can register for the event at https://www.eventbrite.com/e/jan-2020-intelligent-integrated-iot-conference-and-workshop-registration-79658200823. This workshop will be held at the Doheny Library on the USC campus. We are still looking for companies to sponsor lunch and a reception after the event. The exact agenda is still a work in progress but we are planning on having the deputy mayor from the City of LA and the CIO from the County of Los Angeles as keynote speakers.

As a final note, Ken Hayashida, Steve Garske, and I collaborated on a chapter in the upcoming book, "Transforming Healthcare with Big Data and AI" (Information Age Publishing). The book focuses on how data and technology are and will continue to change the way the healthcare industry operates.

It is an exciting time to be involved in the I3 program as things transition from a university research and development program to becoming an operational and deployed system. If you are interested in becoming a member of the consortium and becoming directly involved in the I3 IOT movement, you can check out our website at I3.usc.edu.

READER CONTRIBUTION: A Leaderless World: A Sign of the Times?
by Frank-Jurgen Richter

Dr. Frank-Jürgen Richter is the Chairman of Horasis - a global visions community dedicated to inspiring our future. Horasis is using its unrivalled history of partnership with corporations from emerging markets to create a powerful platform for cooperation

between emerging and developed markets. The flagship events are the Horasis Global Meeting as well as regional summits focusing on China, India, and South East Asia.

He has developed an extensive experience and knowledge on the world's economic, business and political scene and of its key players. As one of the leading analysts of international business, he influences major business and governmental decisions with his public commentary. Prior to founding Horasis, Dr. Richter was a Director of the World Economic Forum. He also lived, studied and worked in Asia for almost a decade, principally in Tokyo and in Beijing where he developed and managed European Multinationals' China operations.

For several decades, the US was considered a major 'influencer' in the global context. It wielded commanding authority and even emerged as the sole superpower briefly when the Soviet Union collapsed. In recent times, however, there has been a marked shift in the prevailing global order and it has gradually begun yielding to what is termed as a multi-polar order. This has been observed on account of newer entrants such as China – one that has effectively consolidated its position as a force to reckon with. In addition to the US, the other G7 nations must also acknowledge that multi-polar leadership has dropped solid anchor and there must be cooperation with other emerging economies in the form of expanded blocs such as the G20.

However, there is an even more interesting point to note. Although it has been traditionally felt that there must be a leader, organization or perhaps even a revolution for any country, technology has paved the way for an entirely different structure – a structure that functions without a key figure holding the reins.

The Rise of Leaderless Movements

Over the past year, there have been numerous instances of mass protests, spanning Asia, Africa, the Middle East, and even Europe and Latin America. A common thread observed through these events has been the absence of any overarching figure of authority. Yet, as is evident, these were organized efforts that gained rapid momentum and did not fizzle out when counter measures were enacted by their respective governments. Similar was the case during the Arab Spring of 2011. The underlying foundation for these protests has been social media and smartphone usage. There are no set manifestos or slogans coined by political leaders; rather there are effectively worded hashtags.

A more recent leaderless movement is the *gilets jaunes* movement witnessed in France. Essentially, it is a political uprising without the presence of one key authority leading the decision making. In a non-political scenario, the #MeToo movement went viral across the globe, again without any one distinct leader.

Enacting Participatory Processes

Treading a similar trajectory is Carne Ross who was formerly associated with the British Foreign Office. In his 2011 book, The Leaderless Revolution, Ross proposes 'participatory democracy,' implying that policy making should be the culmination of numerous people coming together and arriving at solutions by means of urbane debate. What Ross puts forward could also be interpreted from a Darwinian perspective – old orders must evolve.

Ross was not merely expressing a hypothetical idea, and he showcased a working example from Porto Alegre, Brazil. This Brazilian city followed a participatory budgeting process and the outcomes have been noteworthy. There has been a four-fold increase in the number of schools, renewable energy generation efforts have been kick started, recycling has been actively practiced and there is almost uninterrupted availability of water and sanitation services.

The Corporate Sector and 'Leaderlessness'

What if the same leaderless movement trend began making inroads into the corporate sector? The common grievance among workers in the developed world is of stagnant wages and across the spectrum, there have been several leaders who have led electoral victories on the basis of a protectionist mandate, citing globalization as an evil force. In case of emerging economies, large segments of their populations have been lifted out of abject poverty, largely due to globalization. It was instrumental in accelerating the world economy in the decades prior to 2008. However, in recent times, the rhetoric around anti-globalization has begun gaining steam. If this facet is juxtaposed with 'leaderlessness,' would it set up firms for a competitive advantage or epic failure?

One well known example of a 'leaderless' organization is the UK grocery retail chain called Waitrose, owned by the John Lewis Partnership. Its employees are all partners essentially and in 2018, each member received as much as 5 percent of their annual pay as a share of the company's profits. In addition, the extent of benefits that each employee can avail certainly makes Waitrose an example that can perhaps be emulated on a broader scale.

Unprecedented Changes are on the Horizon

It must be acknowledged that the advent of technology has overhauled existing systems. What seemed a distant dream or even science fiction several decades ago is today an existing reality – one that will only become more advanced with further reach. The term 'empowerment' is often cited and technology and education has enabled individual empowerment. The concept of 'leaderlessness' could possibly begin making deeper inroads and it is prudent for governments and businesses alike to brace for abstract, if not, unprecedented changes in the areas of leadership.

READINGS FROM THE EDITOR'S DESK

- [CIOs concerned IT not providing enough of a competitive edge.](#) IT was once treated as a differentiator, but given that technology has become ubiquitous, perspectives have changed. Companies cannot operate or innovate without IT - IT is the enabler of competitiveness but should not be considered the source of it.
- [The citizen data scientist's time has arrived.](#) The term citizen data scientist might be a poor description of an important concept. The idea behind citizen data scientists is that data science techniques should not be confined for use by data specialists; everyone needs to understand data and data science techniques because great things can come from everyone being able to analyze data. Therefore, it is important that the data science group must include a mandate to educate others - by looking at the data science team as being much more than support staff, they will begin to teach employees with deep domain expertise how to make better use of data.
- [Digital Business Planning For Telecom And Utilities](#). Integrated Business Planning (IBP) is becoming important for every industry. IBP moves away from silo based planning processes to look at the company, its partners, and customers as a cohesive ecosystem that must move forward together.
- [Addressing risk management in a digital world](#). The philosophy behind privacy/security should be based on risk management techniques. The risk management process starts with data processing knowledge, it assesses the potential risks, and then takes action to mitigate potential scenarios.
- [The Age of Thinking Machines](#). Artificial intelligence is a keystone technology in the ongoing 4th industrial revolution. Mastery of AI does not assure success but avoidance will lead to failure. AI is a tool that, when properly used, along with other tools can do great things.
- [Cybersecurity: An Organizationwide Responsibility](#). Cybersecurity (and privacy) becomes exponentially complicated as infrastructure demands increase. This drives a need for budget increases but most importantly it drives a need to educate and actively involve employees as a part of the process.
- [The hospital is dead, long live the hospital!](#) Healthcare is undergoing a radical transformation that will result in improved outcomes for all. Digital technologies serve as the catalyst but that does not mean all the changes are digital or tech based. Tech and infrastructure are but the enablers.

OUR LATEST BOOK!

The Real-Time Revolution: Transforming Your Organization to Value Customer Time

by Jerry Power and Tom Ferratt

Time is becoming the dominant customer currency as people increasingly use time as the yardstick as the ultimate metric that defines the customer experience. Organizations striving to provide an idea customer experience have to be cognizant of the customer's time as they seek to demonstrate to the customer that they value all aspects of the customer's journey. Companies that are winning the battle in a competitive and always-on world set the bar for others to follow.

You can order the book from [Amazon](#), [Barnes and Noble](#), or [Penguin Random House](#)
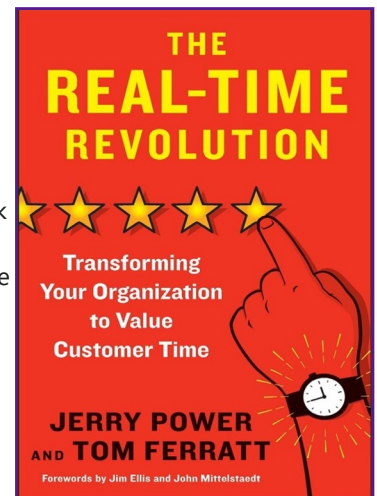
LET's CONTINUE THE CONVERSATION

Please feel free to forward this email to your friends and colleagues who you believe would benefit from participation in our community. For those of you who wish to be included among those who believe that technology is a tool and that business success is achieved by skilled wielding of the tools available to us, feel free to reach out to us. If you have suggestions, topics you want to see included in future newsletter updates, or other general inquiries, feel free to email me at manager@i3-iot.net.

The ideas 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 any other member of our community of interested people.

ABOUT CTM

Originally founded in 1985 under the guidance of USC, the Institute for Communication Technology and Management (CTM) has developed a reputation as a thought leader at the intersection of technology and business. It is not a technology first organization and it is not a business first organization; instead it is focused on developing insights on how technology impacts business and how business impacts technology and then going beyond the simple conversation in an effort to drive market and societal action.