

September 2019 @ CTM

THE DIRECTOR SPEAKS - Towards Smart Agriculture



When thinking about technology, the farming industry is not at the top of the list. But technology is making steady inroads in that space and given the fact that agriculture accounts for more than one trillion dollars of the Gross Domestic Product (GDP), the economic impact is significant. Further, much of the non-farming economic progress made during the 20th century would not have been possible were it not for efforts to increase farming productivity. This makes it essential to understand the importance of the agro-tech efforts to continue their efforts to increase farm efficiencies as a part of a much larger economic landscape.

In the fields, farm machinery is being automated to the point where some of the most advanced autonomous driving systems in world can be found in sophisticated tractors.

(<https://www.youtube.com/watch?v=3D8SGgelOdo>). Drones are also being utilized to monitor crop health based on normalized difference vegetation index data (a form of image recognition).

Sensors are employed to monitor moisture/temperature conditions so irrigation systems can be micro-targeted to specific areas. Cattle and other livestock can be monitored by GPS. And automated environmental systems are utilized to increase egg yields.

But the list of places where technology helps the agriculture community does not stop there. Veterinarians have access to new medicines and can use tele-health systems to better support remote farmers. Connected food transport systems are being monitored for temperature and humidity in order to reduce spoilage while the product is in transit. Advanced distance education systems ensure farmers (and their children) are educated and stay informed. Farmers are also making use of data analytics to better understand soil and environmental factors that impact production and to plan crop production strategies that allow them to target production efforts to meet the needs of high demand markets while improving profitability. There are even systems that target application of fertilizer on an as needed basis, reduce pollution and improve food-quality.

Technology driven advances such as these are all having a growing impact on today's modern farmer. However, there are issues that serve to hamper widespread deployment of these systems that must be addressed. Many of these tech-driven systems are new and are often priced out of reach for the average farmer. The farms themselves are often remote and it is difficult to run communications, electricity, and even water lines across the expanse of a larger farm. And, the support costs required to install and support these systems is often exceeds the equipment costs.

From the trending data it is clear that people are moving from rural areas to urban areas – a phenomena often referred to as urbanization. If the metric employed to measure the impact of technology is based upon the number of people served, that data suggests we focus the majority of our future technology endeavors on city-centric issues. However, if instead, we measure the impact of technology based on economic impact, we increase efforts to to overcome the hurdles that currently impair access many farmer have to agro-tech.

Farms are like any other business – by implementing technology to reduce costs and improve their product, the farms will prosper. There are a broad spectrum technologies that have the potential to increase farm productivity and yields allowing them to produce more high-quality food from less land and water while reducing food cost. It is incumbent on us to drive progress in this space as an economic issue that cannot be neglected.

UPCOMING EVENTS

- **Sept 9-11, 2019, [Intelligent Transportation Society California Annual Conference](#), Los Angeles Convention Center, Los Angeles CA**
- **Sept 10-13, 2019, [Global Network for SMART Organization Design](#), USC Campus, Los Angeles CA**
- **Sept 16-19, 2019, [Oracle Open World](#), San Francisco, CA**
- **Oct 22-24, 2019, [Mobile World Congress](#), Los Angeles Convention Center**
- **Nov 18-21, 2019, [Automobility LA](#), Los Angeles Convention Center**
- **Nov 22 -Dec 1, 2019, [Los Angeles Auto Show](#), Los Angeles Convention Center**

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 Sean Hazaray, Karma Automotive



Sean leads the Mobility Experiences Division at Karma Automotive. Karma Automotive is a luxury electric/hybrid car manufacturer located in Southern California. Sean works to ensure that the Karma mobility solution enhances the car experience in a way that enhances the overall driving experience. Karma's Revero GT had its debut at Monterey Car Week in August and is scheduled to enter production this September. The car is capable of 536 of horsepower which allows it to go from 0-60 mph in 4.5 seconds - performance and luxury in one package.

Luxury goods used to represent a public statement that "I have made it" however today it seems like they are shifting to be reflection "I am going to make it" How do you see it?.

It's a really interesting observation. In my past life working at Subaru, the focus of the vehicle development was targeted towards a utilitarian approach. For most Americans that are interested in purchasing a Subaru, reliability is key factor, and they're cross-shopping a set of vehicles that

meet's their families **needs...**

- *the fuel economy (MPG) needs to be reasonable if we've putting 15,000 miles a year*
- *how big is the truck to fit the 3 hockey bags for the son/daughter's travel sports*
- *the dials are too complicated?! I can't even change the radio station...*

In my current role at Karma, I've had the privilege to really understand the value of a luxury vehicle purchase, as the company goes after market-share from traditional marques like Porsche, Maserati, and even Rolls Royce and Ferrari. Why do people purchase these transportation devices that take you to same place as a reliable Toyota or Subaru?

Well, we've studied Porsche and Maserati like it's French 101. I can't say we have all the answers (far from it), but we've learned that these purchases aren't about just about getting from A to B. It's the emotional feature-set that really provide more value than just luggage space in the boot.

This isn't just new revelation in today's car-buying experience. Rather, this has roots since the 1930's when [Alfred Sloan created a ladder of upward mobility](#) giving Chevy buyers the aspirational ladder to upgrade eventually to a Pontiac. Than, later in life, to a Buick, and if they really make it, have the status symbol to drive a Cadillac. Aspiration is a big reason why the premium and luxury brands boomed especially after WWII, and it's no surprise that the [father of motivation research, Ernest Dichter](#), often consulted for the Big Three's marketing divisions.

We're now in an interesting time in this digital age, where more and more luxury car brands are accessible, via youtube and social media, leading to a new relationship with the general public. It used to be that car ownership meant just that...car ownership. After Lee Iacocca made his mark by developing an industry first lease deal (['56 for 56](#)), the industry was revolutionized to this new approach of leasing a car. Here the shift to the luxury car industry happens...it's less about "I've made it" to more about that moment in the longer aspirational journey, "I am going to make it".

So leasing is becoming more prevalent, and there's a de-emphasis of car ownership at a grand scale. Is this a bad thing?

Not necessarily, but it certainly changes the rules to the game. When you break down luxury, and what truly motivates people to consume on luxury products, it is fundamentally about exclusivity. We, humans, are social creatures, and these luxury products give us an opportunity to share with others that special moment (think of a honeymoon at a near-the-sea resort), but also an opportunity to compare if we're really "keeping up with the Jones."

A car is the second biggest purchase in a person's life, after the purchase of a home. However, unlike a home which is difficult to compare easily to peers, a car is a great benchmark to measure the status. Not only in the US but across the world. Sure, a car is a vehicle that moves people, but it's also a tool to help compare where you are in your journey of upward mobility.

In China, [Porsche and Maserati notice a 40% increase in sales](#) to female buyers (contrast to US breakdown's of less than 10% women). Why is that? Interesting, from the motivational research, a luxury vehicle is a glorified Birken purse purchase to help break down levels of status position in the hierarchy of social circles. When I last visited China, a colleague's comment led me to better understand this phenomenon. *Oh, Sally over there, her boyfriend drives a LandRover, she must be doing really well.*

However, a luxury product is not a guarantee to last forever. In the mid-19th century the concept of ice was luxury product. Nothing more refreshing than a cocktail with some cold refreshing ice...a true luxury in the summer heat! Contrast this with today with the

invention of refrigeration. Ice is no longer an exclusive luxury, it's a common commodity available anywhere.

This is the same challenge facing the luxury car industry from a psychological sense. How can you take advantage of this digital age to promote a brand to a wide audience, while keeping that experience special, unique, and magical. Otherwise, there is no "I have made it" or "I am going to make it" feeling from the experience.

Cars were defined as a means of conveyance but the modern automobile is changing the emphasis so that is much about the experience. What do you think?

There is no question that the in-cabin experience is important to consumers. Just as [Ford when sales were impacted](#) by the sluggish infotainment system a few years back. In-cabin experience has a major impact to the utilitarian needs that consumer demand in their next vehicle.

However, if you ask any automotive enthusiast ("petrol-head" or "car-guy" is a term thrown around in the industry) what their top vehicles of admiration, more likely than not, Porsche 911 makes their shortlist. When you get into a Porsche 911 (especially the vintage variants), it's a cramped interior, the buttons feel flimsy, the interior is cheap...certainly no Mercedes S-Class. That being said, there's no better acoustic from a musical instrument than when a when a air-cooled 911 revs, and there is no better instrument of precision than the accurate control from the agile handling.

The car industry is such a brilliant and dynamic industry, and there's a wide arrange of solutions tackling a variety of consumer needs. For some, the in-cabin experience of Tesla is world class. To others the 0-60 top speed of a Lamborghini Aventador, or the approach to off-road capabilities of a LandRover Defender's is a no-brainer.

Experience is a tricky word. At it's core, a vehicle is a "solution" to the "problem-set" derived from the customer needs. With such a diverse arrange of problems, different vehicles provide different experiences. One thing for sure, by looking back at history, the days of envisioning a "one-size fits all" vehicle [strategy that encapsulated Detroit for much of the '60s and '70s](#) has had limited, due to the complexity of different consumer needs.

You grew up in Silicon Valley (pegged as the future of the car industry) and educated in Michigan (pegged as the historical past for automotive). How do you feel that the car culture of Southern California, compares with Detroit and Silicon Valley?

Growing up in Silicon Valley, I got to see the importance of fuel economy for tech entrepreneurs, as the metric, Miles-per-Gallon (MPG), was viewed as an indicator of technological achievement. The Prius was pegged as this preview of tomorrow's automotive industry...an anticipation of the future. At that point of it's arrival, no other car has a higher MPG. This led to powerful social currency. *Look, my Prius is getting twice as much MPG than your gas guzzling Ford.* It's a very similar appeal that Tesla has with the Silicon Valley crowd.

Interestingly, this was a very similar observation to the petrol-heads of Detroit, who was fascinated by the latest performance of the Big Three muscle cars. In contrast to fuel economy, performance metrics like horse-power was viewed as in indicator of technological achievement. When Chrysler put a Hellcat engine into the Dodge Charger with over 700 horsepower, the entire state of Michigan was on full alert. Dodge? 700 hp? *Look, my Dodge Charger has more more Hp than your Italian, British or German sportscars.* This ingenuity of engineering vaulted Dodge back to the top of the leaders list (for that the one metric).

This gets me to Los Angeles, where I've had the pleasure of living for the past few years. Although Detroit may own **the Past** history of the automobile, and Silicon Valley is often portrayed as **the Future** of autonomous development, in my opinion, **the Present** for the automotive is directed by the Hollywood inspired, green shake indulging, La Vita Dolce beach-towns across in Southern California.

Part of this is for the strong appreciation from LA's car culture, for the diversity of vehicles. Rare in the US (and the world for that matter) is the growing appreciation for classic marques & vehicles like MG Midgets, Land Rover Defenders, Iso Grifo, that appears on countless of car shows across Southern California on a given weekend.

For residents of Southern California, a car is more than a transportation device that drives them from A to B (or stationed in bumper-to-bumper traffic on the 405). Rather, it's their leather jacket. It's their opportunity to show-off their personality to the world, from the bumper sticker revealing their political stance, to the marque indicating their aspiration association. From the pack of McLarens that occupy PCH around Newport Beach, to the restored Porsche 356s in Orange County, there's a greater appreciation for the psychology of vehicles. *I drive a Subaru, and it's Dog tested, and Dog approved.*

We're not the only ones appreciating Southern California's impact to automotive. Last year, Porsche decided to [reveal the 8th Generation 911 at the LA Autoshow](#). Why California? Well, a quarter of all Porsche's sold in the state are from the US. All across the spectrum in the past century, the consumer base in Southern California has provided life to many Global OEMs. One of Volvo's first

arrays into US Sales in the 60's was led by [Gene Klein of Southern California](#), who also owned the San Diego Chargers at one point. And if you point to the automotive Design industry, Art Center of Pasadena has developed an influx of talented car designs, that populate the design centers for major OEMs across Southern California, from Mercedes-Benz Advance Design Center at Carlsbad, BMW DesignWorks at Newbury Park, and others including Ford, Mazda, Subaru, etc.

Southern California has a big impact on greener sustainable powertrains that are becoming abundant in the industry. Much of this is due to CARB, the regulatory body that is on the forefront of pushing OEMs to a cleaner, greener future. In fact, one of GM's first test markets [for the EV1 in the early 90's was in Southern California](#), because of the SoCal demand for a cleaner alternative. This passion for cleaner powertrains has led to a new burgeoning market of electric vehicles, from the BMW i3, Fiat 500e, and even the ultimate expression in clean luxury, the Karma Revero GT (which is built in Southern California in Moreno Valley).

Detroit and Silicon Valley will continue to impact the future automotive technologies, but the industry is certainly taking note... Southern California is a major driving force of where automotive is going!

STEVE SHEPARD: The Adverbs of Business



You may recall from grammar school the days of studying the parts of speech—verbs, nouns, adjectives, adverbs, and so on. At the time, you probably wondered what possible value that knowledge could have, but in fact, businesses succeed or fail on the basis of adverbs.

Adverbs are used to convey situational information: How, What, When, Where, and Why. What's interesting about the relationship between adverbs and enterprises is that they form the basis for every plan ever created by a business. But they have different impacts, and as it happens, one of them is far more important than all the others.

The adverbs 'how' and 'what' are tactical in nature: they define what we do and how we do it. They're important, but without them, without product to create or a way to create it, there's no reason for a business to exist. Simon Sinek talks about this in his well-known video about the Golden Circles.

When and where are more operational in nature. They dictate or strive to define the conditions under which a product is created by the company that creates it. Do we manufacture onshore or offshore? Do we create season-specific products, or products that sell well throughout the year? When is labor least expensive and most available? These are questions that companies ask at an operational level.

And that leaves one remaining adverb to discuss—which is the most important—*Why*. In the field of adverbs, *Why* is the only one that is strategic in nature, because it asks the fundamental question of intent—*why* are we in business, *why* are we doing this thing, *why* are we producing this particular product set, *why* are we doing things this particular way.

The reason this is important is fundamental to business success: too many companies ask adverbial questions in the wrong order. They begin with 'What:' 'Let's build this product or offer this service before anyone else does.' But until they understand *WHY* they should offer a particular product or service, they have no idea of its merits or ability to succeed in the marketplace. Starting at the tactical end of the decision spectrum can work, but is often fraught with difficulty, especially when a competitor enters the market and starts at the strategic end. Better to take a bit longer and understand the reason *why*, before embarking on what could be a costly exercise in futility.

THE I³ CORNER (I3.usc.edu)

On Aug 19, the I3 Consortium held its most recent conference/workshop. It included a stellar list of speakers that covered a wide range of IOT topics including the use of IOT to enhance government operations, IOT use case issues associated with the medical IOT networks, smart manufacturing, and smart gas/oil industries. Some of the technical sessions focused on trying to find the best way to apply technology to under served problems facing organizations today. Application specific sessions approached their topics from the user side of the equation in order to ensure emerging IOT systems satisfy complex use-case scenarios. This was the second I3 Consortium Workshop and through these efforts, the Consortium is developing a unique reputation as being a forum that is focused on (1) future needs in the IOT space and (2) strategies to overcome hurdles that impair our ability to realize bottom line results.

One of the highlights of the August workshop was the live demonstration of a working I3 node (hosted at the USC Hotel - <https://uschotel.usc.edu/>). The Viterbi engineers completed work on V0 of the I3 software in May and quietly released this early example of a working I3 node to the I3 Consortium members. Throughout the summer, more than a dozen companies worked to integrate the V0 with their technologies. Throughout that process the Viterbi engineers gleaned valuable knowledge about how

I3 systems would be deployed and utilized. Additionally, the participating I3 members gained early insight into I3 operational characteristics. The demo system also tangibly demonstrated how the integration of multiple disparate systems at the data layer can provide an improved operational experience for the user.

More specifically, through the demo we were about to tell the story about a person who had arrived at LAX and then traveled to the USC Hotel where they were greeted as VIPs based on the data sensed by IOT systems. They planned a trip to Hollywood Boulevard and attended some on campus events before departing. Despite the fact that the experience traversed multiple city borders and involved both private and public institutions, the data flows that supported an enjoyable and productive trip transcended organizational boundaries associated with legacy silo systems. Employing data as the fulcrum point that allows customer experiences to be managed end-to-end while incorporating applications from multiple suppliers created a compelling use case for how business and technology systems can be managed in concert for the user's ultimate benefit.

For those of you that were unable to join us at the workshop, many of the presentations can be found at <https://www.marshall.usc.edu/i3-aug-19-2019-conference>. On that same page there is a form that will allow you to share your reflections on the conference as well.

STS Roundtable: Organizing to Thrive

On Sept 10-13 USC will be hosting the STS (SocioTechnical Systems) roundtable. This topical event is being run by a global group of organizational design experts, many of whom are world renowned consultants who work with companies to create organizational structure developed to streamline business operations. At this year's event one of the key issues that will be considered will be organization structures of agile organizations. Agile structures are often associated with start-up operations that can operate without the oversight controls expected of larger companies. For this event, there will be a focus on organization designs that allow agile processes and adaptive information structures that serve large complicated companies in the digital age.

Historically speaking, organizational structures were first designed; then processes were developed to support interdepartmental interactions; and finally data flows were structured to support those interactions. Organizational structures evolved slowly because the entire structure of these systems often had to be reinvented to support organizations shifts. Such a slow evolutionary structure cannot keep up rapidly changing market demands. In fact, the entire agile movement arose in an effort to improve organization response time. However, while agile based approaches might allow projects to become more responsive, it cannot make the organization more responsive unless an agile organizational design and an adaptable data support process is adopted as well.

Our research has revealed that more than 80% of transformation programs fail to live up to expectations. The chief stumbling block that prevents these programs from achieving their intended results lies not with the adopted technology but in the struggle organizations have as they evolve their cultures to utilize transformational tool sets. Because the most difficult transformation programs extend beyond existing organizational boundaries, an adaptive structural framework is necessary to support these complex changes.

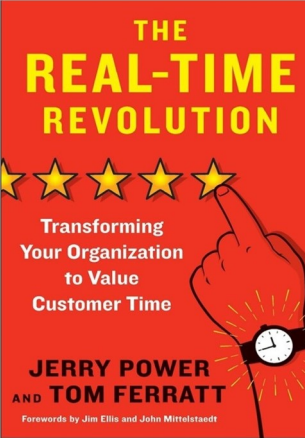
Successful organizations must adopt an adaptive structure if they are to maximize their performance in the face of an increasingly agile market. Agile development processes may be crucial but are simply not sufficient in and of itself. The organizational design process and the data infrastructure that exists within the company must become more adaptive before the end result can produce a sustainable customer-focused corporate culture. If you are interested in exploring different concepts that are intended to allow organizations to support changing market needs, I would encourage you to attend the STS Roundtable's Organizing to Thrive Conference in September (<https://stsroundtable.com/>).

READINGS FROM THE EDITOR'S DESK -- UPDATE

- [What Does 'Marketing Strategy' Really Mean?](#) Marketing strategies should focus on the customer need, communicate the message clearly, and take into account the position in the larger market. This same message should resonate for the entire company - every employee should adhere to these tenants.
- [Why Execution Is More Important Than Strategy](#) Strategies are directional and adaptable to changing conditions. This means the execution process is operationally more important than the original strategy and the execution process must be able to redefine/shape the strategic plan in real-time.
- [The CEOs of nearly 200 companies said shareholder value is no longer their main objective](#) I believe a focus on customer value, employee development, supplier relations, and community involvement does maximize shareholder value -- term profits that boost short term gains at the expense of the relationships needed for long term growth hurts all.
- <https://www.cnet.com/news/how-5g-can-save-lives-by-aiding-first-responders/> We are seeing significant market disruptors coming to market. AR, 5G, AI, and IoT. Each is significant but together they compound the effects of other disruptors and that represents something truly unprecedented for emergency services and many others.

- [3 Trends in Digital Transformation Analytics Every Leader Should Be Aware Of](#) A focus on the composite customer experience over the entire customer journey, a data-driven business paradigm, and a willingness to experiment methodically are hallmarks of a successful digital transformation program.
- [Digital health ecosystems: A payer perspective](#) Healthcare ecosystems are getting more complicated as med-tech systems are interconnected so that they can begin to work in concert to provide a higher level of patient care. These systems present opportunities for disruption by changing customer experiences, creating new business models, and altering interaction models.

OUR NEW BOOK!

<p>The Real-Time Revolution – Transforming Your Organization to Value Customer Time by Jerry Power and Tom Ferratt Coming September 3, 2019 from Berrett-Koehler Publishing</p> <p>You Can pre-order the book now! From: Amazon From: Barnes and Noble From: Penguin Random House</p> <p>Time is becoming the dominant customer currency. Customers want to spend their scarce time well. Organizations striving to provide ideal customer experiences are real-time organizations. They are the core of the Real-Time Revolution. These organizations are demonstrating that they value all aspects of the customer journey in an effort to better serve the customer's end-to-end experience.</p>	
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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 for a complete list of resources.

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 me at jerry.power@i3-iot.net. 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.

ABOUT CTM

Originally founded in 1985, the Institute for Communication Technology Management (CTM) has developed a reputation as the world's foremost institute 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.