

May 2019 @ CTM

THE DIRECTOR SPEAKS - Market Research Should Run in Parallel to Technology Research



On most Profit and Loss (P&L) statements there is a line for "Research and Development" This line makes clear that there is a definitive difference between funds that are spent on Research and funds that are spent on Development. The development process refers to efforts that are applied to design, create, and then test a product or service that will ultimately be sold. The research process is less specific in that it seeks to characterize technology that can be utilized by a myriad of products or can be applied to a unspecific future product. It is curious that there is not a similar concept that can be applied to marketing efforts. After all, there are marketing efforts that are expected to drive incremental sales and separately there are marketing efforts intended to understand market motivators and behaviors. These two kinds of marketing are as different as the difference between the "R" and the "D" in R&D.

In today's world, there is a growing number of efforts that are best described as "technologies in search of a problem". Projects often hyped by the press that have not achieved the desired level of commercial success describes this phenomena. Perhaps it would be more accurate to characterize these projects as research programs that have been rushed into the development phase before their time - before the market research that is needed to mold the technology to fit a market need has been completed.

Technology based research can give us valuable tools but if the researcher rushes to judgement on the market need, the research will be biased as they struggle to produce some market justification for the effort in hindsight. Perhaps a worse scenario would be to begin marketing the product without a clear understanding of the need the technology is looking to fill; worse for the shareholders who are forced to fund such a random walk through the maze of potential customers. The market research needed to support any technology research program has to be completed before either efforts are enter the development phase unless there is an unlimited source of funding behind the project. Only by matching a technology research program with a parallel market research program can there be any assurance that when the product (or service) enters the development phase, there is a sufficient body of market knowledge to shape the development program into a commercial success. When this important step is overlooked, development programs flail about needlessly as they search to find a business problem that justifies their adoption.

UPCOMING EVENTS

- **April 8, 2019.** [Addressing the Challenges of Digital Transformation](#), USC Campus, Los Angeles CA
- **April 10, 2019.** [Digital Summit](#), Skirball Center, Los Angeles, CA
- **April 12-14, 2019.** [CHLA's Gamifying Pediatrics Hackathon](#), BCG Digital Ventures, Manhattan Beach CA
- **April 16, 2019.** [USC mHealth Collaboratory Symposium](#), USC Davidson Conference Center, Los Angeles CA
- **April 25, 2019.** [Oracle High Performance Cloud for Research](#), USC Campus, Los Angeles CA
- **May 13-16, 2019.** [IOT World](#), Santa Clara Convention Center, Santa Clara CA
- **May 19-21, 2019.** [Common Good Conference](#), USC Campus, Los Angeles CA
- **May 23, 2019.** [J3 Working Meeting](#), USC Downtown Facility, Los Angeles CA
- **June 2-5, 2019.** [PegaWorld](#) Customer Engagement Conference, Las Vegas, NV
- **July 10-12, 2019.** [NIST Smart and Secure Cities Expo](#), Walter E Washington Convention Center, Washington DC
- **Aug 17, 2019.** [Data Con LA](#), Los Angeles CA
- **Aug 23, 2019 (tentative).** [J3 IOT Conference and Workshop](#), USC Campus, 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

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 David Galassi, Assistant CIO, USC



David leads initiatives in networking and telecommunications, external networking, enterprise infrastructure, customer support, and operations in support of USC's schools and administrative units. David has worked in the field of information technology for more than twenty-five years with professional experience that spans higher education, health care, industry, and banking. He came to USC from Yale University and before that he held positions at Chemtura Corporation, Applera Corporation, and Oxford Health Plans, among others.

IT used to be about keeping the organizations technology running but its role is changing. How would you describe these shifts?

Keeping the technology running for an IT organization has really become table stakes. However, the effective use of technology can be a real differentiator for companies. The mission of USC is to create and disseminate knowledge, I believe that we in IT are uniquely positioned to enable this mission. We work closely with faculty to enable research through access to high performance computational clusters speeding the time to discovery and high speed networks enabling the best minds in the world to seamlessly collaborate. In fact, the IT team at USC recently was the first to demonstrate a 800 Gbps scientific data flow. Additionally, We provide online access to this knowledge through advanced collaboration tools, digital repositories, such as those from the Shoah Foundation whose preserved genocide testimonials, and to streamline and improve the overall student experience. The IT team is well positioned to help drive innovation across many aspects of the university.

In terms of technology, future trends often first manifest themselves on campuses and then move on to become phenomenon in the general population. Are there examples of this you have had to work through? Are there any current trends that might point to future trends

Many technology trends have started on University Campuses before they have made their way to the general population. One of the greatest examples of this has been BYOD (bring your own device), since the beginning of the PC era, students have been bringing their own computers to campus. The university IT teams have had to find new solutions to enable these student owned devices to easily and securely access campus resources. This BYOD challenge has made its way into Corporate environments and is now common across the IT industry. Now every year we have students bringing new types of devices to access services on our network, this year we've seen devices such as Amazon Alexa, Roomba and other smart vacuum cleaners, smart speakers, gaming stations, virtual reality headsets, and now even connected cars. As you can see we are experiencing just an explosion in the number of new type of devices on our network, we again are looking to find innovative ways to enable and secure these student devices as well as all the industrial IoT device necessary to operate our campus.

When designing a network, one does not design for today's need, you have to design in anticipation of future customer needs. Who do you see are being the customers of the IT department and how does one plan for a future filled with disruptors?

At USC, we have many customers, from the students, faculty, staff, clinicians, parents, alumni and visitors. We always look for opportunities to better serve our campus customers by trying to keep up with industry trends, but more importantly to listen to our constituent. We try to architect systems that will allow for scalability, and novel uses. When the networks at USC were designed no one could have anticipated the terabytes a day that would be transmitted to Netflix, YouTube or Facebook, but we architected the systems that could scale to meet these needs while still enabling access to the learning management systems and student registration. We will need to apply similar architectural principles to other areas of our technology, the most interesting of which is Data. Enabling appropriately controlled access to data at scale will drive future innovations with machine learning and artificial intelligence and will solve important problems such as student success, campus safety and others.

Some would say the technology on a college campus is equivalent to a small town. Can the things that are learned on campus to applied to other, non-academic environments?

The USC campus is very similar to a small city, with each area of the campus presenting different needs and challenges. We operate many type of business's within our organization; we are simultaneously in the residential living, hotel, restaurant, sports venue, clinical care, public safety, office space, retail and of course education business. This diversity of needs can be extremely challenging however it's this diversity that makes the USC campus the ideal proving grounds for technology research such as the I3 IoT testbed.

STEVE SHEPARD: Reflections on the Fourth Industrial Revolution



As the next AMP approaches and we contemplate the week ahead, I want to take a few minutes to reflect on the pre-reading material we distributed about the so-called Fourth Industrial Revolution, and how it's fundamentally different in so many respects from the first three.

Let's review them. The First Industrial Revolution was all about the use of new technology to bring about the mechanization of human-intensive processes—the role of steam or water power to drive machinery, or to improve the efficiency of manufacturing and agriculture.

The Second Industrial Revolution was all about improving the overall effectiveness of specific industries, such as coal, oil, and steel. The arrival of commercial electric power created amazing opportunities for expansion.

The Third Industrial Revolution revolved around the arrival of the Internet and the personal computer and was mostly characterized by the democratization of access to computing power and increasingly fast network connections, all with the intent of improving the effectiveness of human pursuits, most notably in the application of knowledge.

Take note that in each of these, the common element was the arrival of and use of new technologies—in the first case, steam and water power; in the second, process engineering; in the third, advances in computers and networks.

The Fourth Industrial Revolution, however, is different in one fundamental way. Unlike the first three, which were all about efficiency (doing things right), the fourth is all about effectiveness (doing the right things). In this fourth phase of industrialization, we focus on the fusion of digital, biological, and physical systems to create a superset of human capability, and a massive tidal wave of disruption and innovation that will sweep away entire industries, as we know them.

As you prepare for the upcoming program, think about your own industry, and how this fusion, this disruption, has changed the way you do things. A plethora of new technologies—AI, robotics, IoT, machine learning, cloud, natural language processing, analytics, and mobility—have come together to fundamentally redefine what it means to do business, to compete, to operate both effectively and efficiently. This is the disruption we're talking about: it's here, it's real, and it's painful. But advancement never happens without pain; they key is to harness the pain to drive innovation. And that's what AMP is all about.

THE I³ CORNER (I3.usc.edu)

I3 is an IOT data governance system designed to support communities of independent users. IOT device owners register their devices on I3. I3 presents a directory of IOT data streams it knows about to upstream applications. Applications request permission to access data streams from the device owners. If the device owners approve, a connection is made. I3 is about data connectivity in a decentralized world where independent (or semi-independent) IOT device owners are supported in a collective data ecosystem.

The Viterbi engineers have almost completed V0 of I3. V0 is designed to support I3s summer demonstration program where participating I3 members are working to integrate IOT devices below I3 and applications above I3. The summer work will builds over the summer and in August I3 will host an IOT conference/workshop where we will demonstrate that incremental data value can be created by integrating disparate data sources to realize a multivendor IOT network vision. In the fall, the engineers will do some additional testing, fine tuning, performance testing, and document the system so that the I3 consortium will be able to release the I3 software as downloadable opensource before the end of the year.

If you are interested in participating in the I3 summer IOT demonstration program, we are planning one more I3 meeting before the summer demonstration program kicks off on May 23 at the USC's downtown building. You can register for the event at <https://www.eventbrite.com/e/i3-consortium-may-2019-meeting-registration-60325794074>. Feel free to attend if you are interested in participating in the summer program or if you simply want to learn more about the I3 effort. If you wish to attend the conference/workshop, it has been tentatively scheduled for Monday Aug 19, 2019 at the USC Campus. <https://www.eventbrite.com/e/aug-2019-intelligent-integrated-iot-conference-and-workshop-registration-60988753002>

READER CONTRIBUTION: Business Process Management by Setrag Khoshafian

Enterprises are facing unprecedented economic, competitive and global challenges. Traditional approaches to incremental cost-cutting and revenue growth are not succeeding. Optimizing the customer experience to increase customer loyalty and reduce customer defection has become critical. The problem is that the environment in which enterprises operate is constantly in flux. While "adaptive" was once merely a catchy term, it is now a requirement for organizational survival and sustained growth. The challenge is to continually adapt, leveraging customer transactional data, changes in customer as well as market behavior, and to create innovation opportunities with iterative and measurable improvements. Enterprises need to embrace a more holistic approach to adaptability.

The solution for organizations is to understand and embrace the seven key capabilities generally found in adaptive enterprises. These capabilities are not mutually exclusive, yet they are distinct and essential. Enterprises become adaptive through:

- Continuously monitoring optimized, and measurable business objectives`
- Continuously innovating through re-use and specialized, contextual and situational solutions`
- Continuously discovering business requirements with iterative enhancements`
- Continuously improving automated work and dynamic case management solutions`
- Continuously gaining insight, while learning and adapting with better decisions`
- Continuously adapting decisioning champions as customer behaviors change`
- Continuously visualizing, simulating and optimizing decision priorities`

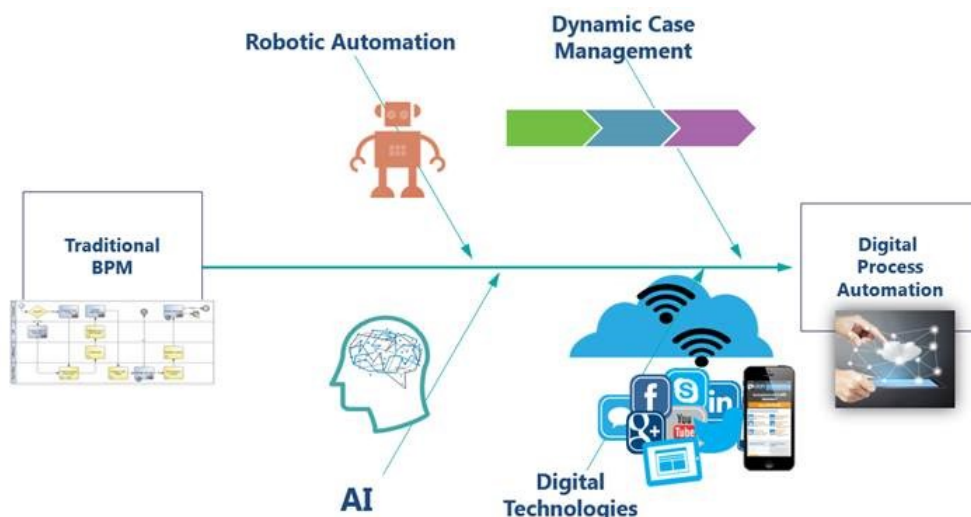
Business Process Management (BPM) Suites have evolved from a number of disciplines. Process improvement methodologies, such as Lean Six Sigma, attempt to eliminate waste in work processing, while increasing the efficiency as well as the quality of products and services. Process automation has evolved from structured production workflows to collaborative, unstructured, and dynamic cases. Process intelligence spans business rules, decisioning, and business events. Architecture patterns such as service oriented architectures and more recently Web oriented and customer oriented architectures are enabled and empowered through BPM Suites. These disciplines and technologies are evolving to what is called the adaptive enterprise. An adaptive enterprise can align its business objectives to the operationalized policies and procedures with complete transparency, visibility and control. More importantly an adaptive enterprise is agile and proactive in responding to change. The only constant in business is change!

Organizations that are increasingly adopting Business Process Management (BPM) Systems to become adaptive enterprises have reaped tremendous benefits in four main areas:

- Generating increased revenue through solutions such as new account opening and cross-sell/upsell with incredible speed while innovating with new products and solutions.`
- Optimizing the customer experience through continuously monitored and optimized customer service and decision management. BPM systems allow organizations to continuously adapt to new market realities and the customer's changing needs, while always focusing on the value of the customer through communications and offers that fit their requirements.`
- Continuously improving efficiencies through eliminating waste and improving speed of execution while building, executing, or improving customer-centric solutions. The automation of dynamic cases is the key enabler of continuous efficiency.`
- Business transformation through the robust support for different levels of business transformation. BPM systems help organizations achieve a rhythm of change through our unique software and methodologies.

Organizations understand that they need to become more agile in the face of increasingly dynamic market environments. BPM Systems are needed to enable the organization to realize the promise of the adaptive enterprise. With BPM, stakeholders will have complete visibility and control of their objectives, which are often expressed in key performance indicators. Stakeholders can see and understand what is going on with their support, mission critical actions, and management processes. More importantly, they can be proactive and make changes to improve them. BPM enables business stakeholders to be in the driver's seat: monitoring, improving, innovating through new solutions, automating work and building efficiency throughout. In other words, BPM is about running the business.

Today, BPM software has evolved to incorporate Robotic Automation, Dynamic Case Management, AI and Digital Technologies. The evolution of BPM in its current incarnation is Digital Process Automation (DPA) - as illustrated here.



This article contains excerpts from the Setrag's original [Adaptive BPM article on pegacom.com](http://www.pegacom.com/adaptive-bpm)

READINGS FROM THE EDITOR'S DESK

- [Future Proof Your Marketing Organization: Interview With McKinsey Partner Ed See](#). Customers are assets; marketing is tasked to build relationships and increasing the value of those assets. The role of a CMO is to incentivize people to change their behavior by engaging with them differently to increase the value of these relationships.
- [How to Earn a Perfect Customer Satisfaction Score](#). Customer satisfaction requires an understanding the customer's key success factors so the company can become a success partner. This means that customer support should not be thought of as providing product support but must become customer success coaches.
- [How the CMO-CIO Partnership Helps Personalize the Customer Experience](#). Marketing is changing; marketing had meant branding and campaign management but the modern marketer must be concerned with every aspect of the customer experience. Departmental partnerships and a holistic view of the organization are important.
- [Seven Moves IT Leaders Should Make Before A Digital Transformation](#). North Carolina State cites 7 digital readiness strategies to improve transformation results. While the characteristics are described in a digital context, they could be extrapolated to establish criteria for general business success.
- [Marketing Plus Technology: Martech, The Simplification of the Intrinsically Complex](#). The purpose of Martech lies behind the combination of multiple marketing tech tools that serve to make communication effective, seamless, but ultimately to make change happen, to create opportunities, and to change to a better future state.
- [Why Budgeting Cripples Agile and Innovation](#). Traditional budgeting processes hurt agile and customer-centric missions because they force spending into functional silos and budgets become defacto performance objectives that are disconnected from market dynamics.
- [Why You Need a Data Archiving Strategy](#). Data archiving sounds like mundane housekeeping but it is important; a good strategy makes it easier to recover from a cyber-attack and provides a process that can be utilized to ensure compliance with data privacy laws which often have retention requirements.

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.

- [The Need for a Fourth Industrial Revolution Operating System \(free\)](#). The application of Fourth Industrial Revolution thinking to our data-centric world requires that we rethink the macro systems that govern the way that humans relate to the data that surrounds them.
- [How AI Could Tackle City Problems Like Graffiti, Trash, and Fires \(free\)](#). Cities operate fleets of diverse vehicles to serve their citizens. By equipping these vehicles with video cameras and using video analytics to self-identify issues requiring attention, cities can be made more efficient.
- [I3: An IoT Marketplace for Smart Communities \(free\)](#). I3 (The Intelligent IOT Integrator) is a data governance system that manages IOT data flows for independent device owners. It allows users to self-manage their data streams and allows them to determine when/how their data streams are used by applications.
- [The Evolving Internet of Healthcare Things \(free\)](#). IOT infrastructures will reshape IOT application paradigms as healthcare networks emerge to support a fluid and gracefully evolving healthcare data environment.
- [The Fan Multiplier Effect \(free\)](#). Marketing programs should be driven by behavioral objectives and measured by metrics that are focus on driving increased fan engagement
- [Internet of Things \(IOT\) Model](#). CTM has developed an Internet of Things (IOT) model that allows users characterize IOT market behaviors and test what-if paradigm shifts in demand.

SUPPORT CTM

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

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

GOT A BUSINESS, TECHNOLOGY, STRATEGY ISSUE?

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