

Communications, Information, Technology, and Management

- From i3 Systems and The I3 Consortium -

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THE EDITOR SPEAKS - A Physical Metaverse?



When email became a standard form of business communications, it was often presented as a move toward a paperless society. The reality, however, seems to demonstrate that paper consumption is actually growing due to the increase in online purchasing creating an increased consumption of paper boxes and filler material. Thus, contrary to expectations, while the advent of electronic communications reduced the volume of paper correspondence, it did not diminish the consumer's appetite for paper.

Similarly, the more recent embrace of virtual communications in the form of remote working practices, cellular communications, and teleconferencing was at one time expected to reduce our demand for travel. While the shift toward these technologies could have portended a reduction in demand for transportation, they have been accompanied by supply chain issues, air travel, and continued highway congestion. If the ability to interact remotely served to reduce the dependency on transportation, shouldn't these problematic issues be reduced? Early data suggest that the increased use of technologies that allow remote interactions stimulate an increased need for transportation services to move goods between remote worksites and to replace physical interactions that would otherwise have taken place in the office.

Diving deeper into these trends, it is clear that a single email does save what, at one time, was a physical letter. But because email systems make correspondence so much more efficient, many more emails are sent than the physical correspondence of the past. And it has now become so easy to add multiple recipients to the email chain that the sheer volume of email messages dwarfs what could ever have been physically mailed. As a result, if only a small fraction of these emails are printed for later reference, the aggregate change in demand is minor and, if some of these exchanges result in product purchases that must be packaged and delivered to the customer's door, it is easy to see how the net demand for paper will necessarily increase.

Similarly, while remote working environments might save an individual from travel that had become repetitive, it also increases the sheer number of meetings that can be scheduled in a day. In an effective business environment, some percentage of these meetings must be conducted face-to-face to maintain team integrity and these interactions become even more important in a virtual world. Thus travel is not eliminated, but only becomes a smaller percentage of a growing number of interactions. Moreover, the virtual world also serves to drive an increased need for breaks that serve to change the scenery and even makes vacation and weekend times of greater importance as employees seek to avoid the burnout that can come from confinement to a locale that serves as both home and office. The net result is that a more virtual world actually serves to increase consumer dependence on transportation services.

Recently, there has been much discussion about the emergence of the metaverse; a collective virtual environment that allows people to interact with one another with simulations of physical and imagined worlds through digital twins and artificial intelligence. In its extreme form, the metaverse can be thought of as a simulated means of conquering time and space by supporting a real-world existence from the comfort of home. However, given those disruptive technologies that promise to disaggregate people from the confines of their physical world have actually increased these dependencies, it appears that the metaverse could amplify the need for physical contact.

Some justifiably question whether the hype that centers on the metaverse is overblown and whether there is a real need for a virtualized world. However, if history is any indicator, a more virtualized world that makes our interactions more efficient will ultimately create a need for increased intimacy which must be conducted in the physical world. How this shifting dynamic ultimately manifests itself remains to be determined, but a virtual world does not diminish the need for physical interactions with stores, restaurants, and one another.

UPCOMING EVENTS

- Jan 20, 2022. [The Gartner Top Strategic Predictions for 2022](#) and Beyond. Virtual Webinar.
- Feb 2, 2022. [Digital Healthcare Innovation Summit](#). La Jolla CA.
- Feb 23-24, 2022. [Computer Vision Summit](#), San Jose CA
- March 4, 2022. [Horasis USA 2022 Meeting](#). Virtual Event
- March 17, 2022. [CIO Southern California Summit](#), Los Angeles CA
- March 22-23, 2022. [SoCalBio Digital Health Conference](#), Long Beach CA
- June 14-15, 2022. [Reuters Auto Tech](#). An online conference.

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

THE I3 CORNER

Release 1.1 of the I3 software has been formally released and we are working with our customers to upgrade their installations. The latest release of the I3 software includes some performance improvements, supports private servers, has improved documentation, and has made some presentation enhancements. Additionally, this latest software now includes a larger set of example software integration models which reduces facilitates integration into existing data infrastructures.



On the business side, I3 Systems has developed a reseller/partner program and the company is now actively seeking partners who are interested in reselling the I3 software. The I3 software was developed to provide data governance and management tools for use in federated operating environments. The company has begun to engage with system integrators that see I3 filling a strategic role by enabling them to better serve the systemic needs of larger organizations however, we are also expecting to engage solution developers that see the value in the integration of I3 Systems into their AI and database products or for device developers that have a need for a systems-level coordinator.

The R2.0 software development program has now entered the design stage and the development team is excited about the new features I3 R2.0 will bring to the market. While R1.0 of the I3 software was designed to support the growing number of data streams that exist in an organization and give data producers visibility and control over how their data is being used within an organization, R2.0 of the I3 software will focus on giving the data infrastructure the ability to dynamically adapt to changing data needs. R2.0 will also bring some enhancements to I3's integration process by making it even easier to integrate I3 with data devices and data applications. (R1.0 is already pretty easy so the improvements envisioned for R2.0 are pretty cool). I3 Systems understands that the data assets of an organization are becoming an increasingly dynamic environment and that the applications space is also becoming an agile ecosystem. The I3 Software is being positioned to be the glue that links these two systems together so the data can be managed for the organization's benefit.

We have also updated the structure of the I3 Systems newsletter. I3's commitment to keep the newsletter free of blatant marketing propaganda and to accept articles from outside sources and independent thinkers who are related to communications, management,

and technology remains constant. However, the intent is to make it easier for our readers to quickly scan the newsletter to identify their personal high-priority topics.

READER CONTRIBUTION: NFL Extends Moneyball to a New Level of Professional Sports Leadership

by Randy Bean, Founder and CEO of NewVantage Partners



It's been close to 20 years since the book *Moneyball: The Art of Winning in an Unfair Game* was first published, and a decade since the film starring Brad Pitt made its debut.

These events contributed to the elevation of data as a topic of awareness among the general public. This coincided with the emergence of Big Data as an area in which every major corporation was suddenly compelled to develop a strategy, policies, practices, and executive leadership in the form of the Chief Data and Analytics Officer.

Coincident with the rise of Moneyball thinking in sports, the MIT Sloan School of Management launched its first sports analytics conference in 2006, which continues to the present day, and has featured speakers over the years including Billy Beane, Nate Silver, Adam Silver, and Jonathan Kraft, among many executives from the world of professional sports.

Today, data best practices have become well established across the professional sports world. It is against this backdrop that the National Football League (NFL) has now taken the concept of Moneyball to a new level with the appointment of a Chief Data and Analytics Officer (CDAO) supporting the breadth of the enterprise.

In doing so, the NFL has selected a seasoned data executive with experience across multiple industry sectors. Paul Ballew comes to the NFL CDAO role, having held these responsibilities at Ford Motor Company, Loblaw Companies, Dun & Bradstreet, Nationwide Insurance, and General Motors over the course of the past three decades. Ballew describes his new role as “a marriage made in heaven”, noting his “passion for sports”.

Ballew notes that the time was ripe for the NFL to take this step in expanding the role of the CDAO given the range of data-driven initiatives that the league is undertaking at both the league office level and at the club franchise level. The league office employs approximately 60 data and analytics professionals, which are augmented by the individual teams in what Ballew describes as a decentralized approach where data and analytics are delivered as a service.

The NFL is in the process of investing in the expansion of its data and analytics capabilities across several major initiatives, which include:

Health and Player Safety – The NFL has been at the forefront of research on head trauma in support of concussion reduction. Data and science are being used to compile analytics to improve conditioning and safety measures, including the use of bioengineering to develop new products that can help reduce injuries, including lower extremity injuries.

Fan Relationships – The NFL is working with clubs in local markets to improve the fan experience through more effective targeting and segmentation with the result that fans can be delivered new services and products that match their interests. The league and clubs are engaging with fans to ensure two-way communication that enhances the fan relationship and experience.

Sponsor Relationships – Sponsors continue to be critical partners in providing the NFL experience. The NFL has built one of the strongest brands in corporate America, and the ability to leverage data and analytics to measure and maximize sponsor investments is important to ensuring the strength of these relationships. These NFL sponsors are primarily consumer package goods (CPG) companies that are heavy users of data and analytics.

Officiating and Football Operations – Data is being captured, analyzed, and used to optimize all aspects of the game, including officiating and football operations. Replays are being analyzed to gain insights that improve officiating, such as determining the optimal location of officials on the field so that officials are in “the right spot to make the right call”.

Media Optimization – Professional sports are big business and attract huge national television and radio audiences. Data is being analyzed to understand and optimize media consumption and develop the right measures to track audience viewership through Nielson and other services including NFL Red Zone. The NFL is seeking to understand how content is consumed to enable future flexibility in media options.

The NFL also recognizes its responsibilities to the communities it serves. There has been a growing national debate in recent years about the importance of ethical data use, privacy, and data protection, as businesses of all stripes face growing demands to ensure the ethical use of customer data. To that end, the NFL is advocating for the responsible use of data and is supporting community justice programs and criminal justice reform initiatives. Working in conjunction with clubs across the league, the NFL is using data and analytics to support historically black colleges and universities as one example of NFL social justice initiatives.

From a technology perspective, the NFL is developing a comprehensive data management approach that enables data ingestion and data curation at scale. The league is also beginning work with AI and machine learning applications as part of its data and analytics infrastructure.

Professional sports represent “a very different culture” from the worlds of manufacturing and engineering that he comes from, observes Ballew. One item that Ballew notes is that he reports to the leagues Chief Strategy & Growth Officer, Chris Halpin, which places him squarely within the business and growth side of league activities. This would be a dream for many Chief Data & Analytics Officers within industry who yearn to be a part of the growth engine of their organizations.

In conclusion, Ballew remains a realist and expects his new job to be a “learning experience”. However, he exults in the opportunity to shape and grow the future of a game that he loves, using insights gleaned from data and analytics to shape the future of the NFL franchise and brand. We all look forward to the fruits of these efforts.

Technical Debt Continues to Grow by Jerry Power

Technical Debt is a term that describes the additional costs that arise when a maintenance or development task that should be undertaken is postponed in order to expedite another task. In a development environment, if a specific feature is accelerated and that acceleration causes another feature to slip into another release, the technical debt refers to the cost required to restructure the system rollout. For example, in a customer service environment, if testing or documentation are postponed, this postponement creates incremental costs for the system which is technical debt. In a maintenance setting, if an expected maintenance action is delayed, the incremental costs that arise from that deferred maintenance action should be classified as technical debt. At its core, technical debt is any cost that must be covered in the future due to a prioritization decision that is made today.

The term technical debt is commonly used in software development and refers to the costs associated with reprioritization of features, bugs, missing documentation, or other software maintenance tasks. Technical debt is not an avoided cost but a deferred cost that typically grows larger the longer it is delayed.

In an operational setting, if maintenance actions are postponed, the system can become vulnerable to failure. Failures are often unpredictable but when a failure occurs due to a deferred maintenance action, the total cost of that failure would properly be categorized as technical debt. For example, if an organization fails to implement a security patch in a timely fashion and the network is hacked as a result of that missing patch, the entire cost of the hack is technical debt. Alternatively, if an organization delays the upgrade of a legacy software system, the costs associated with continued use of the legacy system are technical debt.

Technical debt has always been a problem that plagues organizations attempting to constantly innovate and grow with limited resources. Several tech blogs have reported that many tech departments were only able to respond to the challenges created by pandemic-driven shifts in the marketplace by delaying other projects which have had the net effect of dramatically increasing technical debt levels. A recent Harvard Business Review (HBR) article (<https://hbr.org/2021/12/effective-digital-transformation-relies-on-a-shared-language>) relates that such increases in technical debt will have long-term negative consequences to a business's prospects.

If an organization originally scheduled to rebuild their data infrastructure in an effort to break down departmental silos that impair their ability to fully utilize their data assets or postponed a needed overhaul of their data governance support systems in order to provide support services to remote workers until these critical issues are addressed, the organization will be forced to operate in siloed data environments. Such restrictions can be disastrous, especially if the competition has been able to overcome the inefficiencies associated with legacy siloed data systems. The decision to postpone such important projects in order to respond to an emergency may indeed be the right call, however, it must be understood that such decisions increase the workload and funding requirements once the emergency has passed.

Entrepreneurs are taught to enter the market with a Minimal Viable Product (MVP). An MVP inherently comes with significant technical debt as necessary features and capabilities are postponed to allow market-testing of a product concept. Such real-world market-testing is an important aspect of bringing a new product to market, but the magnitude of these initial technical debts must be taken into account in the organization's business plan. Companies, especially startups, cannot lose sight of technical debts, even in times of growth or expansion, because it will lead to avoidable disasters.

Technical debt is not an inherently bad thing as long as the absolute level of technical debt remains visible and can be managed. However, when technical issues are postponed without an active recovery plan, a vicious cycle can materialize and ultimately undermine an organization's strategic direction. As a whole, the tech industry should congratulate itself for its ability to shift in order to accommodate the challenges created by the pandemic but at the same time, the industry must keep in mind that the projects that were postponed to allow such an agile response cannot be forgotten.

READINGS FROM THE EDITOR'S DESK

- [Effective Digital Transformation Depends on a Shared Language](#). Organizations understand the inefficiencies associated with siloed data systems. Overcoming these issues requires an evolvable data architecture. Unfortunately, the pandemic has forced many projects to be delayed and increased overall technical debt.
- [Accenture Digital Health Technology Vision 2021](#). Accenture's Digital Health report highlights the need to redefine the healthcare IT technology stack so that it is more adaptable, modular, and reusable across the organization. A necessary evolutionary step in any digital transformation process.
- [B2B commercial analytics: What outperformers do](#). Companies that use data analytics grow faster than their peers but the analytics processes have to be designed to be goal-driven. But first, data and tools have to be positioned to enable the achievement of the goals. Data/tools are the enablers of growth.

About I3 and I3 Systems

Originally founded under the guidance of USC, the Institute for Communication Technology and Management (CTM) was formed to support a deregulated telecom industry. I3 Consortium spun out of CTM based on the position that increased technology collaboration

must be married to increased business and data collaboration. I3 Systems was formed to develop software tools and pursue commercial opportunities based on these concepts. This Newsletter was created as a vehicle to foster continued conversations about issues that transcend specific technologies and specific industries. When the CTM organization was shut down, support for this newsletter was picked up by I3 Systems to ensure these valuable conversations continue to occur.

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I3 Systems, 1146 N Central Ave #687, Glendale CA 91202, www.i3-iot.com

I3 Consortium, www.i3-iot.org