Communications, Information, Technology, and Management

- From i3 Sytems and The I3 Consortium -

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THE EDITOR SPEAKS - Ecosystem Disruption

Disruption can be defined as an unexpected change in the way an industry serves its customers. When looking at an industry, its normal evolutionary process involves a continuous series of step changes. New products and services are introduced as a part of that evolutionary process. New players emerge and staid industry participants fade away. The underlying economics and business models continuously show ebbs and flows. A stable and thriving industry is not a static industry but one that continues to evolve over time. When a disruptive element is injected into a stable industry, the industry will shrug off the potential change if the benefit of the change is unable to justify the acceptance of the disruptive element. And, if the benefit is seen as introducing a net positive change, the disruptive element is embraced and can restructure the entire industry.

The tricky thing about a potential disruptor is that in the early stages it is difficult to determine if a disruptive element will be adopted by the industry or rejected. The press recounts many instances of companies that have been slow to adopt a disruptive industry change in direction and the tragedy that comes from this lack of foresight. Seldom, however, does the popular press cover instances where a company rushed to adopt what they thought to be a disruptive concept only to watch the industry reject their efforts. The time and energy spent on concepts that “could” have been disruptive loom larger than the opportunity cost of missed opportunities.

Peril awaits companies that miss disruptive opportunities but there is also significant peril if the organization chases opportunities that cloak themselves as being a disruptive force. Not to add more anxiety to the issue, but while there is peril, either way, doing nothing while competitors continue to evolve equates to assured destruction. In the face of such significant decisions, how does an organization know the best path forward?

Deloitte recently published an article (How do Industries Evolve) that suggests that the best way to recognize the potential of a disruptive element is to look past the disruptive element itself and instead focus on the impact a

potential disruptor has on the established relationships that bind the industry together. This thesis is based on the concept that an ecosystem, by its nature, ties ecosystem participants together. Two companies form a formal or informal partnership so that the value provided by both companies supersedes what either company could do on its own. When an industry's partnerships are mapped, there is a value flow from the raw materials to the final customer A potential disruptor must to break the established chain to either significantly improve its efficiency or dramatically increase the value as perceived by the end customer.

An example cited by Deloitte is the construction industry's adoption of digital twins. Digital twins are digital models of a building or a group of buildings in an area. This digital model is sufficiently detailed so that it can be implemented by a construction company (or similar entity) to improve its operating model for the benefit of the end customer. For example, a digital twin of a building can potentially be utilized to reduce the time and money needed to obtain the necessary permits from the city. It can be employed to test new architectural concepts during the design phase in order to eliminate risk during physical construction while reducing material costs. It allows a level of modularized construction to be applied that would otherwise not be possible. It can even change the way large buildings are sold and rented to tenants. Further, these digital records can be utilized to reduce building maintenance costs as a digital record that aids maintenance activities. In all these cases, the value of the digital twin is not the digital twin per se but in how the digital twin changes the processes that are utilized to build, construct, and support a building. These requirements drive the costs that underlie the development of the digital twin – costs that are presumably sufficient to justify the adoption of new technology.

While we might all be blessed with perfect hindsight, it is difficult to predict whether a potential disruptor will disrupt an industry or whether it represents a false flag. People too often assume that a new and novel technology, which is undoubtedly interesting, will become a disruptive industry force. Too many entrepreneurs are motivated by FOMO (Fear of Missing Out) and accept that some potential technology will change the world without pursuing their own due diligence to understand how the system works and how it can impact an established industry. In general, disruptive solutions face much higher hurdles than evolutionary ones and are therefore much more likely to fail. A part of the reason for this is that a disruptive solution often has few established practices it can draw from but a larger reason may be that most potential disruptors as evaluated as point solutions and not evaluated for their ability to impact relationships that span an ecosystem.

UPCOMING EVENTS

- August 16-18, 2022. AI4 2022, Las Vegas, Nevada.
- September 26-29, 2022. Smart Cities Connect, Washington DC.
- October 5-6, 2022. AI and Big Data Expo, Santa Clara, California
- October 27-28, 2022. International Conference on Public Health Informatics Management, Los Angeles CA
- October 27-29, 2022. International Conference on Smart Home for Health and Elder Care. Los Angeles CA.
- November 9-10, 2022. Intelligent Cities Canada.
- November 15-17, 2022. Smart City Expo, Barcelona Spain.

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

The i3 concept continues to draw more interest from the market. Arguably. the technologies being developed by i3 Systems to manage data in federated operational environments were lucky in that the technology came to market during the pandemic, a time when employees were increasingly working from home. There was some luck in that we brought our first product to market when ecosystems and partnered relationships began to be more important than individual and siloed efforts. Moreover, arguably, i3 Systems was fortunate to bring a product to market when the backlash against big tech and the increased focus on privacy and data governance became major concerns in Washington. The truth is that luck had very little to do with it. While the specifics could not be predicted, these are trends that are arising from increased dependence on data and the backlash that always accompanies any disruption to an established path forward. Where i3 was lucky relates to the fact that a number of large companies had made significant investments in systems that were ill-equipped to function in federated environments without ancillary support systems and from the fact that numerous startups suffered from the delusion that technology could eliminate the need to deal with human and organizational issues.

When the i3 concept first emerged from the i3 Consortium and USC in 2017, the SoCal Cities such as Los Angeles and Long Beach saw the promise of the system and began working with the Consortium so that a functional system could be stood up and tested in a real-world environment. i3 Systems took the Consortium concept and built a software product around it that could support large-scale, multifaceted data systems that will one day be the hallmark of large data infrastructures. The City deployed a modest development system in 2021.

In 2022, i3 Systems stepped up to take on the challenge of integrating the i3 software with a number of applications and devices in order to create a mobile video analytics platform. This system employs the i3 technology to create a real-time data governance and management system that supports alert notifications as well as AI-enhanced video surveillance features. Because i3 is application and device agnostic, the system allows the City to obtain the best technology has to offer without fear of creating data silos that inhibit city operations.

For the last several months, we have put a hold on many marketing activities to completely focus the entire company on preparing the software for deployment in a production environment. It is possible you may have seen us driving the streets of Los Angeles over the last several months while we were testing the system. We look forward to the day when i3 technology will have a positive impact on the lives of 4M Angelinos as we help the city serve its residents efficiently and effectively.

We look forward to the next phase in i3's evolution. On the development side, we are about to begin work in i3 R2.0, Business development has identified several leading universities that are interested in obtaining educational licenses and other cities are expressing interest in the work we have done with the City of LA. Because the outlook is so promising, we are looking to grow our team based on a collaborative contribution operating model (inspired by the HyperloopTT model). i3 Systems is committed to our

‘customer first’ philosophy and because of that, we have promised existing customers that we will not grow faster than our resources can support.

READER CONTRIBUTION: How to Get Your Business Stakeholders to Want and Use a Data Glossary

by Nicola Askham, A Data Governance Coach and Consultant.

Getting a data glossary in place can take a lot of hard work and effort, so it can be particularly frustrating if/when your business users don’t truly appreciate the value it brings and either don’t want to help you build it or don’t use it when it has been built.

Why are you creating a Data Glossary?

A big reason why such a scenario happens is because we often ignore why we are creating a Data Glossary in the first place. By this, I don’t mean you should have one because you are implementing Data Governance. I mean answering the question of *why your business users should want and use one?*
This doesn’t mean rattling off a predefined list of benefits, but rather taking that deep breath, stepping back (figuratively speaking) and working out why exactly you’re building a data glossary in the first place and for who.

Why does *your* organization need a Data Glossary?

I’m often asked how to engage business stakeholders (which you should be doing right from the start of your Data Governance initiative) with your data glossary. To do this you need to understand the value a data glossary would bring to them.

And this message needs to be tailored to each group of individuals you’re speaking to, as one reason why won’t work universally across different stakeholders. These messages need to be specific for each of your groups of stakeholders, however, here are a couple of benefits to give you some examples when seeking to communicate the value of your data glossary.

For instance, the faster development of reports is a common theme as a lot of time and effort often can be wasted creating reports without agreed definitions. This can result in ongoing disputes, wasteful meetings, and ultimately, poor decision-making with damaging consequences for an organization.

Another potential benefit of a data glossary can be identified in the quicker implementation and deployment of new systems. Whether building a system from scratch or implementing a bought package, decisions need to be made as to the data which will reside in the system and this will result in lengthy debates on the exact definitions of certain terms like ‘customer’. Wouldn’t it be nice (and much quicker) if those debates happened just once and the agreed definitions logged in the data glossary to be referred to in the future instead of repeating this for each new system?

And of course, this approach inevitably results in different systems having slightly different definitions of the same thing! That is not going to help data integration and analysis.

> **A data glossary is invaluable for streamlining definitions across an organisation and ensuring a common understanding over data and how it can or should be utilised.**

A data glossary can act as a cornerstone of proper, consistent communication – the value of this speaks for itself.

Ah, you say, *but we already have a business glossary but our business users are not engaged with it. How are we supposed to communicate value?*
Simply put, don't let the fact that you already have a data glossary stop you from taking the approach detailed above. You simply have to work out what value it will bring and communicate it. This would mean identifying what data challenges your business users are facing and using these examples to demonstrate how a data glossary can solve those challenges.

When having conversations with your business stakeholders, it is common for them to get confused between a data glossary and a data dictionary. If that is a challenge you are facing this article will help you explain it with confidence. Read it here.

AI Meets the Physical World
by Jerry Power

Artificial Intelligence (AI) is often positioned as a transformative technology, a technology that is capable of transforming all business and service practices. Further, the more recent advancements in AI are reducing the cost of this technology making it more readily accessible and the increased application of AI is changing lives every day – whether we are aware of its presence or not. However, it should be emphasized that most AI conversations tend to focus on a specific project or use of the technology. Whereas it is more accurate to treat AI as more of a design philosophy than an individual project

Most AI systems are best described as expert systems. These systems replicate the activities that an expert undertakes; however because these actions have been automated, the expert system can function far faster and process more data than an individual ever could. Expert systems have the potential for significant improvements in efficiency. However, even the best expert in the world occasionally makes mistakes and the amplification effect of AI systems means that an AI system can make many more mistakes than a human ever could.

To guard against such occurrences, organizations that make use of AI technology must be hyper-vigilant and ready to respond immediately if an AI system makes a problematic decision. For the AI overseer to be aware of a potential issue requires that they have access to more data than the AI system.

In the world of AI, allowing an AI engine to make a poor choice should not be looked at as a bad thing. When an AI engine makes a poor selection, it indicates that the decision-making process must be better trained. The identification of a poor option along with the data that would have allowed a better choice to be made is the basis for computer learning and that is where the true magic of AI lies. If the algorithms can learn or be taught better decision-making processes, then over time, the errors associated with AI will be reduced.

Logically, this implies that over time AI processes will get better and better until they are error-free. However, this assumes that the algorithm will continue to encounter similar situations. However, in the real world, there are always surprises. And thus, while algorithmic-based learning will reduce the AI error, it actually never gets to zero. In that, lies a significant danger with AI systems. As errors become more infrequent, the algorithmic overseers lose their ability to detect problems, become complacent, and begin to trust that the AI processes will continue to run error-free.

For example, cybersecurity systems are effectively AI systems that look for clues related to cybersecurity and flag an action when a potential threat is detected. Bad guys know this and are always on the search for a new way to inject their mischief into the system via a mechanism that is not recognizable to these security systems as a threat. Some of the most successful hacks begin with sending an innocuous email that entices a user to open a file or access an infected website. AI tools that detect such threats have gotten so good that users can be lulled into a sense of complacency where they let their guard down. In an effort to keep people vigilant, some organizations manufacture phishing emails to educate and keep their employees vigilant.

As we continue to make progress in AI, we should expect similar concepts will begin to apply to all AI areas. AI systems will no longer be able to function as expert systems but will be expected to generate sufficient ancillary data to allow the AI decision-making processes to be verified. AI systems will also be asked to periodically produce bad results so the validity of the support processes around the AI system can be audited and tested. As progress continues to be made in these fields, additional attention will be placed on quality testing of the AI-directed outcomes.

READINGS FROM THE EDITOR'S DESK

- 9 common data governance mistakes and how to avoid them When data governance programs fail, it is usually because of the human aspect of the program. Governance tools help automate what is essentially a human/process problem. Need a process first and then the tools to support the process.
- How industries evolve: Interactions, not institutions, drive disruptive change When an industry is disrupted, relationships change. Potential disruptors can be examined according to their impact on ecosystem participants rather than a focus on a disruptive technology itself. A brilliant and elegant way to look at disruption.
- Why AI and machine learning are drifting away from the cloud There is a constant ebb and flow between centralized and decentralized computing. The shifts come from changing economics with networking, labor, software, and hardware. The shift to edge and networked intelligence reflects our current reality.
- How edge computing impacts data infrastructure strategies Early adoption of edge computing has been slow Expect accelerated activity as systems emerge to edge processes to be easily integrated into a larger data infrastructure. This shifts the focus from applications to distributed intelligence systems.
- Smart cities, smarter public health The operation of a smart city creates data that allows for the early identification of trends impacting health. It stands to reason that the term smart cities will be synonymous with healthy cities. Maybe we should be calling them smart and healthy cities?
- How to unlock the full value of data? Manage it like a product A company's data is a product/service that creates value for the company. It should be managed like a product with a defined life cycle, a product manager, support/development service, and everything else associated with maximizing the product's ROI.

- Advancing health equity through community-based ecosystems Most healthcare initiatives seem to focus on the hospital or the doctor-patient relationship at a time when it is clear that we need to think about healthcare as a community issue. That means we need to think about data as a managed community resource.
- The Era of Borderless Data Is Ending Laws that impact data are changing and different per geography. The prospects for a consistent umbrella policy are dim. The result is that companies have to know what data they have, where it is stored, how it is used, and where it came from.
- Data mesh vs. data fabric: Eliminate humans or use them more intelligently The value of data analytics is clear but the processes needed to manage data is not. While there are competing ideas, these concepts are all based on the idea that data has a life cycle that must be managed.

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