Operating Technology to the Power of Information Technology

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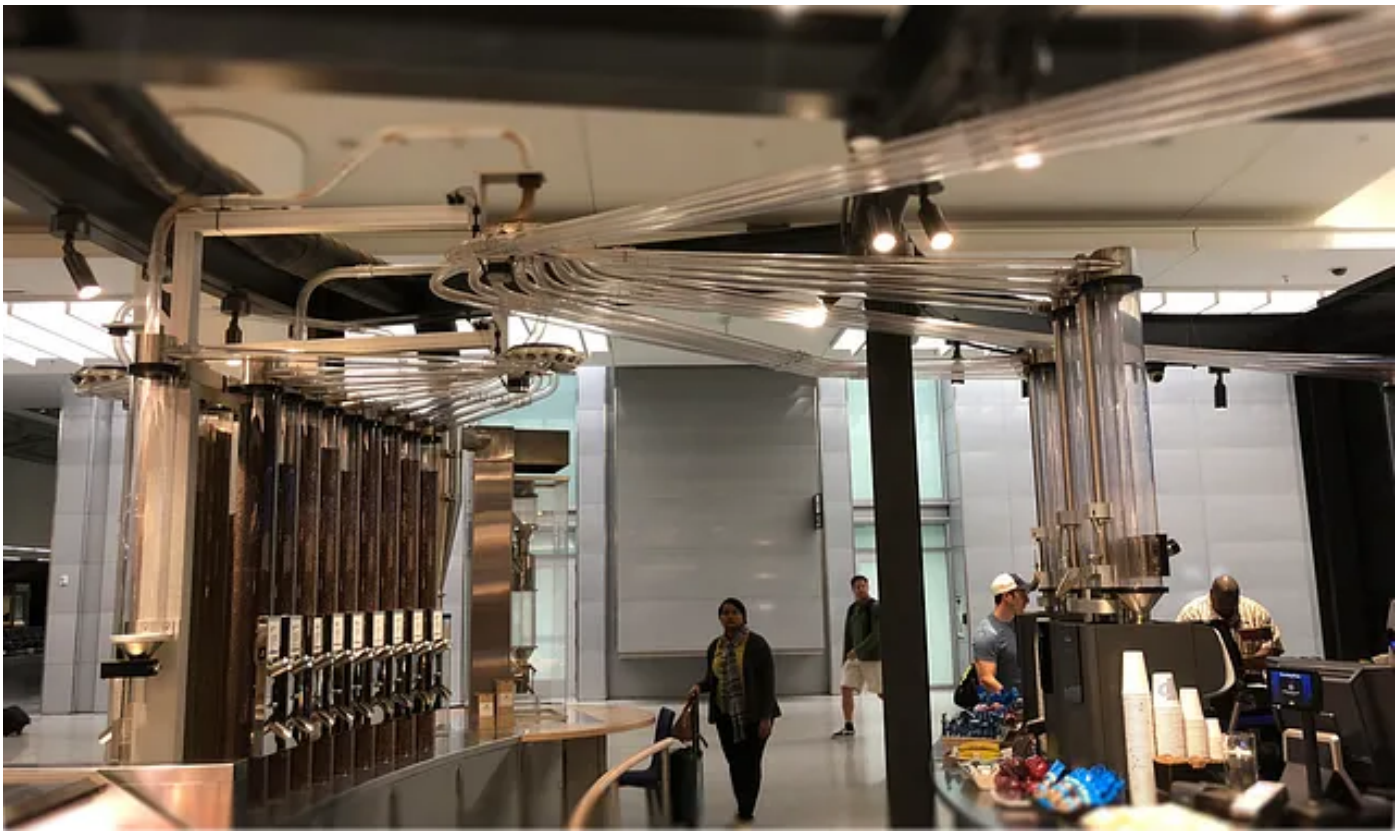

Roasting Plant Coffee's JavaBot when in San Francisco International airport, photo by Michael Hay circa 2018

Roasting Plant Coffee, here at San Francisco International Airport, employs their JavaBot (video story for the birth of the JavaBot) to deliver you a "bespoke" coffee brew delivered a cup at a time just in time. In a very real sense when you enter one of their stores you're inside a coffee factory capable of taking in green coffee beans and delivering an ultra fresh cup of your favorite brew tuned to your discerning specifications. The founder of Roasting Plant Coffee, Mike Caswell, is a former Starbucks supply chain specialist who also has an Information Technology background due to his time at Digital Equipment Corporation as a manufacturing engineer. Mike's aim was to build a coffee store that delivered coffee freshness as a key differentiator to the coffee drinker.

To deliver freshness as a “coffee feature” Mike and his co-designer distilled and refined the technology that roasts micro-batches, grinds enough coffee for a single cup and brews it on demand. While JavaBot contains embedded Information Technology (IT), the intent isn’t to focus on IT, but obviously to make a killer cup of coffee! Perhaps said another way: IT doesn’t deliver the end product, the espresso or coffee machine does. In truth, the exclusion of IT from directly participating in final production or delivery is an important point because it is now the clear line of demarcation versus those industries that continue to use IT for final production or delivery.

You might be wondering why coffee and IoT? The point isn’t so much about a killer cup of joe, but more about how central IT is with its people, processes and technologies with regard to a company’s operating line of business. For companies like Roasting Plant Coffee, IT is merely a component, and this continues to hold true for industries that produce physical products like automobile manufacturers, natural resources production & refinement, organizations that generate and distribute electricity, and so on. In these industries there is indeed an intense use of technology and associated people/processes, but IT isn’t at the center. If we compare this to telecommunications, banking, insurance, cloud service providers, software as a service companies, data brokers, and so on, something different emerges. In these industries the use of IT is central to how they generate their services, solutions and products or more generally make money. In some cases this makes sense because industries like cloud are fundamentally IT. However, for telecommunications, banking and insurance that have non-IT outputs, what they produce is both virtual and has long been governed by IT. For instance, although telecommunications offers data pipes as a key value, monetized through monthly subscriptions, you can’t actually get access to their pipes without IT as networking equipment, and billing systems. Similar logic can be made for banking, insurance, data as a service, etc. The point is there is a divide between those industries that leverage IT as a central actor in their business operations versus those that don’t.

Are both IT driven and IT component companies capable of participating in the Internet of Things (IoT) movement? I believe that IoT is more like like an industry movement and is therefore similar to cloud. This means that there isn't a single vendor, product or even service class that will define IoT. Instead, IoT is both already here and yet to arrive at the same time. It is already here because there are technologies that can deliver on the promise of IoT today. Plus there are new innovations that will surely make a difference for companies adopting IoT architectures, products, solutions and services. Given this, the answer is a resounding yes because the decision for IoT is orthogonal to the decision of how to incorporate IT. But a chief question remains: An opportunity to capitalize on IoT solution architectures exists in just about every industry; where do we begin to hunt for these opportunities? As it turns out the answer is again simple and applicable to both types of industry: seek out areas where the business processes are complex, aged and inefficient as a byproduct of their real world attributes and physical implementation. This by definition is the brownfield with the opposite being the greenfield — Roasting Plant Coffee demonstrates the greenfield concept by looking at the existing coffee industry and associated human process, and designing it from the ground up around the concept of reducing the inconsistent human element.

But what does this mean in the nitty gritty details of (re)defining real business in IoT? Let's take a look at a specific brownfield example uncovered during my vertical incubation work in the Oil and Gas industry. We worked with a company who used IT in their seismic data acquisition system. Our intention was to help them modernize their software and hardware stacks for their next product cycle. During that discussion we encountered a primitive setup that included their proprietary software, aged networking, storage, etc. Their fundamental problem was that their solution did not scale without incredible cost. This issue had been long masked by booming industry financials which were changing. Our immediate response was that they may want to quickly interpose a VM (Virtual Machine) into their design to insulate them from hardware changes over time as a quick win. To our surprise we

had to explain what a virtual machine was and how it could make migrating their software to different systems faster and easier. Let me restate this point: this company was in 2016 just learning what a VM was! Subsequent discussions proved that what's largely in the market for sale today, as converged systems, satisfied their needs well. What this proved to me and the team involved was: always check our assumptions and be willing to have them proved wrong. This and other interactions show there are plenty of brownfield opportunities in companies with long business cycles who haven't modernized their tooling. These opportunities span from application of today's Information Technology an advanced IoT future.

What about other industries who use IT as a key facet in operating business? Are there "IoT" opportunities there, and if so where? One example is in Financial Services. There implemeting regulatory compliance requirements meets the letter of the law/regulation, girds companies against litigation and streamlines business processes. However are their processes modernized? Not so many years ago Nirvana Farhadi related her specialized work to check financial trade compliance was highly dependent upon the usage of Microsoft Excel and an extensive manual review process. Even today, while some modernization has occurred the costs to comply are significant with bespoke teams built for each regulation resulting in misunderstandings between IT and Compliance teams. The opportunity is to help these teams modernize their compliance approaches. While at a glance this may not be what we want to think of as IoT; however, because our operational definition of IoT is to seek out areas where business processes are complex, aged and inefficient as a byproduct of their real world attributes and physical implementation, then in this way compliance modernization fits.

Beyond looking to the greenfield for OT to the power of IT, like Roasting Plant Coffee, there are many opportunities in the brownfield to address. For this article we explored that aged processes and implementation approaches in Financial Services compliance plus Oil and Gas seismic data acquisition are ripe for modernization. There are also two important lessons about getting a

seat at the table for modernization discussions that I'd like to relate. Firstly, without someone credible from the target industry participating in customer calls an immediate dismissal is highly likely. Secondly, careful applications of Design Thinking and customer Co-Creation, including industry expertise, is downright mandatory to actually make OT to the power of IT. Finally, I'd like you to take away that overall there is IoT potential not just in heavy industries like Oil and Gas but also in industries that trade on intangible products and services like Financial Services.