

ISSUE 1 | JUNE 2017 | BY CONCORD PROJECT TECHNOLOGIES INC.

VELOCITY

INNOVATION AND LEADERSHIP FOR CAPITAL PROJECTS

INVEST IN PEOPLE, FIRST

A ROADMAP FOR
TRANSFORMING YOUR
CAPITAL PROJECT
ORGANIZATION

A NEW APPROACH TO
STANDARDIZATION IN
CAPITAL PROJECTS

ATTRACTING **MILLENNIALS**
TO OUR INDUSTRY

INSIDE: Exclusive interview
with NASA's Chief
Knowledge Architect



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PROJECT PERFORMANCE ACCELERATION PLATFORM

WHY CAPITAL PROJECT MANAGEMENT INNOVATION IS BROKEN, AND HOW TO FIX IT

In an era when capital project managers regularly encounter complex, dynamic and interdependent problems, innovation remains slow, stagnant or non-existent. Why?

BY OLFA HAMDI

When we initiate a search for solutions, we consult the very people, companies and organizations that established the status quo. We use the same concepts, methods and recommendations that have contributed to past failures.

We ask third-party consultants to collect subjective data that barely scratches the surface in terms of understanding what project teams actually do, what their challenges are, and what processes they use to deliver on their promises. Owner and EPC companies hemorrhage knowledge at every turnover because they have no technical infrastructure for capturing, sharing and re-purposing project expertise. Third-party consultants walk away with everything the team has learned, and return at the next opportunity to proffer their latest solutions, for a price.

Meanwhile, the mechanisms our industry has established for creating, testing, learning and innovating are irremediably paralyzed by bureaucracy and ineffective use of resources.

The companies that provide technology and research to capital project managers

almost always rely on project owners and large contractor companies to fund innovation efforts, but customers should not be asked or expected to bankroll innovation. Steve Jobs did not ask Apple customers for funding to develop the iPhone.

The capital projects management industry needs a better way to encourage and accelerate innovation.

Project owners and primary executors need the ability to innovate on the fly while delivering cost-effective projects. They need the power to collect accurate, real-time data that can reveal best practices in their unique, real-world contexts, and can facilitate decision-making through the visualization of trended impact of decisions.

They need the ability to meaningfully track metrics in key areas including:

- Business decisions
- Contracting strategy choices
- Staffing decisions
- Work processes and

- communication protocols
- Front-end definition quality
- Lifecycle deliverables development quality and effectiveness
- Execution and scope controls accuracy
- Office and field productivity assumptions used for target-setting
- Team integration and roles

In a recent article, Steven Strauss of Harvard's Kennedy School of Government notes that project outcomes can take years to materialize. Consequently, it is important to establish continuous integration of project teams, stakeholders, data and processes using a knowledge-development platform that can ensure integration, continuity, consistency, accountability and transparency. Project managers can minimize the impact of staff turnover by creating a traceable, measurable history of the project. This can only happen with a change in

the value proposition and business drivers for these projects.

First, the cost of technical innovation in capital projects must be borne by the solution provider, as an integral part of the business model. IT companies and knowledge and advisory companies cannot preach innovation and effectiveness to project owners and EPC contractors whilst simultaneously begging funds to support their own innovation. The Concord team did not wait for owners or software companies to write us a cheque. We identified the needs and pain points of project teams, built our platform and solutions, and now we are asking you to implement it within the framework of an innovation alliance at a fraction of the cost of the few other alternatives.

The cost of innovation is built into our outcome-based business model. Companies can fit the use of our knowledge-enabling technology to their unique investment plans. Simply put, if your project never makes it through the full funding gate or to the next phase of execution, your organization and project should not have to pay for a technology license that will never be used, and you should not have to worry about losing the ability to mine the data you've collected for years.

Second, innovation must be supported and driven by accurate, real-time project feedback. This enables relevant, high-value knowledge creation across all phases of the project lifecycle and across all stakeholders involved in the ecosystem of a capital project organization. It also allows companies to evaluate their projects and practices regularly, without relying on outmoded, unvalidated best practices or the biased opinions of

consultants. Every project is different, and what works for one company on one project may not work for another company on another project.

The only way to know what will work on your project, right now, is to have up-to-the-minute feedback and assurance on what's working and what's not. This is real-time innovation, on the fly. That's how you create knowledge and value. That's how you create a real competitive advantage.

Innovation can't be achieved by throwing resources at a problem. Strauss again: "Resources do matter -- but more for their quality than their quantity." We believe the best innovation is an iterative

process fueled by high-quality, timely, project-specific, company-specific data that gives your team members the information they need to build solutions that work for your company and project ecosystem right now.

The platform we are unveiling at the Petrochemical Update conference is not just an idea or a concept, it is a complete, ready-to-use operating system purpose-built for capital project teams. The proprietary Team-Concord™ (T-CON™) platform is embedded into a carefully designed and developed platform that is poised to move the capital project industry into a new era - an era in which "innovation" is not just a buzzword. 🌐



The capital projects industry needs a new way to unleash and accelerate innovation.



HOW THE RIGHT TECHNOLOGY WILL KEEP YOUR MILLENNIAL ENGINEERS HAPPY ON THE JOB

BY CONCORD ENGINEERING TEAM

There has been a great deal of hand-wringing about the failure of capital projects to attract and keep millennial workers. This is especially true when it comes to highly trained young people like engineers.

Why don't they want to work on capital projects?

A recent article by Petrochemical Update captures some of the most common questions we ask ourselves as an industry. Is it the image of petrochemical projects as dirty and dangerous? Is it the failure to reach young people when they're in high school, or the failure to train them when they're in college? Should we be courting them on Twitter and Facebook, or sending younger representatives to career days and job fairs? Maybe a slick new technical gadget will persuade them to come on board -- holographic construction, anyone?

Maybe some of the answers to these questions will lead to improvements in attracting and retaining young workers, but true leaders have realized by now that we're asking the wrong questions.

Millennials simply want what everybody wants: A working environment that is intuitive, collaborative and flexible. Young engineers want to learn. They want to be part of a

team. They want to be valued, to contribute, and to feel a sense of satisfaction after a job well done. The catch: They want all this from day one.

Giving your millennial workforce this experience is possible, through technology. But like healthcare and other complex industries, capital projects have struggled to keep pace with technology in a way that mirrors the world millennials have grown up in.

Imagine a life built around seamless technology, in which you socialize, grocery shop, do your banking, watch movies and even pay for your morning coffee -- all with your phone. In school, millennials use cloud-based blackboards, work on challenging projects with colleagues from different disciplines, and are encouraged to present and communicate as much as possible. They're rewarded for creative, bold thinking.

Then they walk into their first job and are met with legacy IT infrastructure plagued by serious interoperability issues, communication protocols that are constantly breaking down and stacks of unsearchable paper documents that were already out of date by the time they got back from the printer. There are few opportunities for creativity or collaboration, and in some cases, no mentorship or slow learning. Many

find themselves waiting for the next cycle just to join a training or a conference. Those who do get the opportunity to work on a large project may never even meet the people in the field. Is it any wonder they struggle to fit in, and then leave?

Some companies try to address this issue by increasing the number of fancy tech toys around the office and the field, but they're missing the point. It's not about the technology, it's about what the technology does. Millennials want workplace technology that allows them to connect and contribute.

The T-CON™ platform was designed by young engineers to usher in a new era in capital project management. We've built the technology that allows millennial engineers to connect and contribute.

The multi-disciplinary, fully integrated design of the T-CON™ platform facilitates learning unlike any other capital project management system. It creates a space for unprecedented sharing and collaboration. Every member of the team is valued and empowered.

We'll continue to hear stories about young engineers' miserable project experiences until the capital project environment adapts to the unwritten demands of its best and brightest new hires.

The new platform must enable contribution and connection for every member of the team, regardless of how many years they've been with the company. The platform must be designed to empower.

Give your millennial staff a path to productivity and value creation, and they just might surprise you. 🌐



“Give your millennial staff a path to productivity and value creation, and they just might surprise you.”

A DIGITAL TRANSFORMATION ROADMAP FOR YOUR CAPITAL PROJECT ORGANIZATION - PART 1



BY THE CONCORD CLOUD EXCELLENCE TEAM

Much ink has been spilled about “digital transformation.” As a general concept, the term refers to a company’s efforts to use emerging digital technology to change business processes, competencies and models. There can be no doubt that digital transformation has the power to resolve past failures and prepare businesses for future challenges.

It’s rare, however, to hear talk of digital transformation purpose built for capital projects. Those who do talk about it often resort to importing out-of-industry concepts with little critical thought. We believe there’s a better way.

The Concord team believes a company’s digital transformation is a puzzle, and the pieces include not only the technology itself, but also the understanding of the organization’s data, knowledge, transactions and future. In other words, digital transformation demands a full understanding of a business ecosystem.

Migrating to the cloud is just one piece of that puzzle. Here’s how we believe it should be planned and executed for capital projects and asset-intensive companies.

Cloud Migration, The T-CON™ Way

If you think migrating to the cloud means moving files from one place to another, say, from a private server to a shared server, don’t do it. This is true especially if



your organization has made a large investment in data centers over the past five years.

We believe migrating to the cloud is an unprecedented opportunity to establish a powerful knowledge architecture that will supercharge your company’s next capital project. The T-CON™ cloud-based platform and cloud migration protocol have been purpose-built for capital projects. We help owner and EPC companies leverage historical project data to support informed, effective collaboration on current and future projects.

This article walks through an overview of the T-CON™ principles and protocol

for moving to the cloud.

“The first rule of any technology used in a business is that automation applied to an efficient operation will magnify the efficiency. The second is that automation applied to an inefficient operation will magnify the inefficiency.”

- Bill Gates

Moving data from in-house servers to the cloud can be challenging and costly. Executives in asset-intensive industries are reluctant to fund a full migration to the cloud, and for good reason. Legacy project information management software, is built and implemented on-premise; it’s already very expensive, and

vendors can't themselves transition to the cloud without a dramatic impact on pricing for large clients. For owner and an EPC decision makers, that means moving the capital project organization to the cloud is and will remain hindered by the old business models and deals signed with legacy software vendors.

T-CON™ offers a simple and cost-effective option for transferring large amounts of project data to the cloud while taking full advantage of military-grade security and unprecedented data management features. In the process, the platform applies intelligent structure to your data, making it easier to access and use.

Our protocol is based on the following principles:

- Digital transformation is not about adopting the hottest technology trend. It is about understanding the challenges faced by your capital project organization, and investing in technology that solves these challenges.
- Digital transformation is an opportunity to create a knowledge architecture that improves your company's access to its silent archives, which are replete with experience and know-how that can foster increased effectiveness and efficiencies.
- Digital transformation should not cost more than your current technology. It should cost less, and have a clearer and faster return on investment.
- While there are general principles for planning and executing a digital transformation, the process remains a very unique contextualized experience because people are and should be at the center of such effort.
- Digital Transformation is ultimately about resolving complexity. It takes deliberate study and thought to manage complexities in a capital project environment.

Why should you partner with the T-CON™ team to migrate to the cloud, and not traditional software and service companies?

T-CON™ is purpose-built for EPC capital projects: We do one thing, and we do it well. By contrast, traditional software companies will take a cookie-cutter approach to your migration, using the same methods they've used for industries ranging from finance to healthcare. We believe capital project organizations are unique.

Our competitors don't apply any intelligence to your historic data, they focus only on data that will be generated in the future. We do both. Our platform and migration protocols apply intelligence to your historic data, so you can access the information you already have and leverage it to increase employee effectiveness and to reduce project costs.

T-CON™ applies a set of machine learning algorithms and semantics-driven protocols that are purpose-built for capital projects organizations. This means that T-CON™ quickly creates a knowledge database that can be used by capital project organizations, right away. Our competitors don't know how capital projects work, and will charge you extra to conduct surveys and interviews so they can understand how data flows through your capital projects. Why waste time? Use our framework to map your project data sources and start the process of linking them to the T-CON platform in the fastest, easiest and simplest ways.

T-CON™ offers out-of-the-box permission schemes for managing access and data storage in the cloud. These schemes do line up with the contractual and real-time roles in the capital projects lifecycle, from initiation to execution and startup to operations. We go further by enabling the connection between your contractual data requirements to your server requirements ensuring seamless data decommissioning at the end of the facility lifecycle or the project startup. This is particularly useful for projects with proprietary sensitive information



shared with contractors and consultants over a long period of time. Nobody else does this.

T-CON™ helps capital project organizations integrate technology and project teams by fostering a common-interest discussion and collaboration. Technology teams are focused on maintaining private company servers, leading enterprise-wide transformation and decommissioning data at the end of a project or asset life. Project teams are focused on visibility, data accuracy, productivity and real-time collaboration. T-CON™ is the only platform with the power to align these groups. This enables bridging of the historical gap between your IT and project teams. Nobody does it better. To the contrary, legacy software companies benefit from the historic isolation of capital project organizations, thus ensuring their longer-term involvement while taking on the service needs of the information.

Upon request, T-CON™ improves information security with more complex customized versioning backup and disaster recovery options.

T-CON™ supports true innovation from within, by leveraging emerging cloud-based technologies to support and drive in capital project management and delivery. 🌐



“ We believe the right digital transformation should not be about adopting the hottest technology trend. It is about understanding the challenges faced by your capital project organization and ecosystem, and investing in shaping technology to solve these challenges . ”

INVEST IN PEOPLE , RATHER THAN IN I.T.

“Any resource essential to competitiveness but inconsequential to strategic advantage carries more risk than reward.”

BY CONCORD AI TEAM

The best capital project leaders know that a company’s most important competitive advantage is its people, not its technology.

So why is it that when investment slows, people are the first to go?

And why is this still true now, in the middle of a skilled labor shortage that has been ominously referred to as a “retirement tsunami” and a “demographic labor cliff?”

During a slowdown, project organizations executives shouldn’t have to choose between paying for a software license and keeping a skilled project professional. Executives should be able to leverage downtime to build skills and expand project experience. Because now, more than ever, your people are your competitive advantage.

It wasn’t always this way. There was a time in the not-so-distant past when a new piece of software could give you an advantage in the marketplace. This is no longer the case. As Nicholas Carr wrote in his controversial 2003 Harvard Business Review essay about the diminishing value of information technology: “The core functions of IT are ... costs of doing business that must be paid by all but provide distinction to none.”

Responding to Carr, New York Times technology writer Steve Lohr made the message even clearer. “The value is not in the bits and bytes, but up a few levels in the minds of the skilled businesspeople using the tools,” Lohr wrote. “Large chunks of

the technology may be commoditizing, but how you use it isn’t. That is where competitive advantage resides.”

It is difficult to keep people on payroll when the industry is in an economic trench. Investment in capital projects depends on many interconnected factors, from the price of raw material and energy demand to changing national and international trade policies. When the market sinks and capital investment ebbs, executives in asset-intensive industries have to cut spending.

Many believe that the obvious place to start is by cutting people who aren’t actively producing.

We disagree.

We believe that training people to manage capital projects is such a Herculean task that a high-performing team should be kept together at all costs. Your people and your team distinguish you from your competitors in a meaningful way. They are your best competitive advantage: Highly skilled, fully trained, entirely unique and yours alone.

By contrast, your information technology is a commodity. It’s absolutely essential to remaining competitive, but it doesn’t give you a strategic advantage because everybody has it. Here’s Nicholas Carr again: “Any resource essential to competitiveness but inconsequential to

strategic advantage carries more risk than reward.”

We believe in reducing the cost of IT infrastructure as much as possible, while simultaneously increasing its reliability in an effort to mitigate risk. This allows you to spend your capital on your real competitive advantage: your people.

The solution, then, is not more IT, but better IT: Tools that are intelligent enough to capture knowledge and put it to use to support and mentor new hires. This happens through a carefully designed knowledge platform, which is the basis of T-CON™.

Capital project management is not a Sisyphean task. You are not doomed for eternity to start from scratch each time you need to build a team that can deliver a complex project.

You can reject the prevailing wisdom that says successful project management depends on “tools” and “best practices.” Reject the belief that capital projects will forever struggle with low productivity because each project is different and dependent on an unpredictable workforce.

Adopt instead the belief that people - their skills, competence and experience - are your true competitive advantage. Adopt a knowledge-retaining platform to help you go through the tough times, invest in teams, and when the good times return you can capitalize on their experience through the power of accountability, alignment and transparency.

Concord Project Technologies’ T-CON™ Platform gives you the unprecedented ability to shape clear levels of accountability and to enable transparency around and across the project team. 🌐

Standardization And Innovation From Within, The T-CON™ Way

The problem: It seems impossible to establish industry-wide standards in capital project management. Attempts by even the most powerful interests have failed.

BY CONCORD STANDARDS TEAM

The solution: Expand and intensify efforts at internal, company-driven standardization.

Ambitious, forward-thinking owner and EPC companies can leapfrog the competition by embarking on a highly focused internal effort to mine historical project data and to leverage the intelligence and passion of new and veteran employees.

This new approach to company-driven standardization is quarterbacked by T-CON™, a powerful cloud-based platform that has been purpose-built for capital project management. The platform provides exceptional tools for multi-stakeholder collaboration from the office to the field -- but it goes much further. T-CON™ also catalogues current and historical project data in a sophisticated and highly intuitive database that uses advanced technologies to provide the most relevant information, on demand. T-CON™ puts the power of big data and artificial intelligence at your fingertips. All you have to do is use it.

This new approach to company-driven standardization holds that standardization is not about some vague notion of "doing good." Standardization is about making rational performance →



gain decisions based on the T-CON™ Principles for Standardization Protocol (PSP) in capital projects:

1 | Standardize with priorities

Are you looking for technical superiority, or business superiority? When deciding which standardization efforts to sponsor, companies must give more weight to market factors than to technical factors, to improve adoption of the standards decision. That said, technical superiority needs to fit a business case, otherwise it becomes a burden.

2 | Standardize with purpose

What is the purpose of your standardization effort? Most companies focus on design and specification standards, but consider, for example, that significant resources are typically spent on the non-engineering information development and exchange. A company should consider what gains might be achieved by standardizing this exchange of information. Recall that capital project professionals who actually create the standards are working in an area of imperfect knowledge, cost constraints, limited incentives, changing relationships, and often, long-range planning with short cycled economic conditions.

3 | Know the cost of inaction

If a method or process is known to produce superior results, the decision not to standardize is a decision to accept losses. For example, a project delivery platform backed by Advanced Work Packaging gives a clear competitive advantage to companies who implement it properly, while moving processes and activities to the cloud has resulted in significant savings and increased efficiencies for early adopters. Leaders should be prepared to explain why they've opted for substandard performance when better alternatives are available

4 | Choose the right venue for your standardization efforts

The best way to ensure that your standardization effort will succeed is to carefully choose the right venue. The

risk of conflicting interests killing the standardization effort is great, whether you're standardizing in-house or industry-wide. As standardization expert Carl F. Cargill wrote:

"...When you put two dozen people with conflicting emotions, goals, backgrounds, and personal motivation in a room, ask them to decide on a complex interface whose future characteristics may or may not impact the market, their respective companies and their personal careers, and then provide minimal guidance and no enforceable deadline, the outcome is hardly a standard that works for everybody."

Many promising standardization efforts in the industry -- or within companies -- have been thwarted because the idea was put to discussion in the wrong venue. Choose yours carefully.

How T-CON™ Helps the Internal Standardization Process

T-CON™ has developed and validated the first Platform supporting the standardization of non-engineering information for capital projects. This innovative platform will help companies bring intelligence to their previously executed projects, as well as their existing and upcoming projects.

This platform enables you to:

- Easily mine historic data to facilitate smart, fast searches across your company's "lessons learned" databases, your project documentation - including PDFs, as well as your company's emails, communication channels and all file types. Our Live Intelligent Search Assistant (LISA™), supported by big data and artificial intelligence, is a core component of T-CON ensuring that you get the right answers to your questions and helps reduce the time wasted by your teams looking for the right source of information.

- Continuously build a structured knowledge library as your team feeds knowledge into T.CON™ in real time. Save on staffing, document management and re-organization at the end of every project and facilitate data decommissioning at the end of the project without the struggle of contractual risks. Our team helps you easily structure your cloud servers to match the project contractual packages without limiting the extent of collaboration between various stakeholders.

- Extract ready-to-analyze information about your project and save hundreds of thousands in benchmarking efforts. Additionally, use passive non-intrusive data collection to continuously evaluate your project delivery system components.

- Stay in control of your internal information and protect your competitive advantage. Share only what you choose to share with external consultants and auditors and various contractors and keep traceability over their access and interactions. Additionally, you would be able to use remote wipes functionality ensuring that you remain on top of enforcing your contracts and data decommissioning.

- Make data the start of the decision-making process, not the end.

- The T-CON™ knowledge infrastructure is derived from our belief that bad data is worse than no data at all. All numbers are not facts. As Richard Royall, professor of stats at Johns Hopkins says, when faced with data it's critical to ask three questions: What does the data imply? What do I believe? What should I do, considering both?

Answering these questions is the first step to a successful digital transformation.

Contact us to talk about how we can help your organization access unprecedented sources of data integration and activate your standardization protocols. 🌐

Nasa Chief Knowledge Architect
David Meza On

IMPLEMENTING KNOWLEDGE MANAGEMENT

The T.CON™ team recently sat down with David Meza, the Chief Knowledge Architect at NASA’s Johnson Space Centre. With a background in computer and information sciences, Meza has held various roles at NASA for more than 20 years, from IT management to workspace engineer, overseeing 12,000 computer systems at the Johnson Space Centre (JSC).

Meza said the story of NASA’s bold move into sophisticated knowledge management begins with the simple story of a taxonomist and a web developer. The two met to establish protocols for the release of data to one another, but could not agree on the terms of the exchange. At an alignment meeting, it was later discovered that they were both using the word metadata, but had completely different ideas about what metadata meant. This single meeting triggered Meza’s thinking and eventually led to the creation of NASA’s Knowledge Architecture Office.

In our wide-ranging discussion, Meza touched on six concepts that can help capital project leaders in their own efforts to establish a knowledge architecture.

David Meza is the Chief Knowledge Architect at NASA, the National Aeronautics and Space Administration in Houston, Texas.



1 | Understand the three components of an effective Knowledge Architecture

When Meza and his team set up NASA’s first Knowledge Architecture Office, it took them several years to identify and fully define the three pillars of a complete Knowledge Architecture: Knowledge Management, Knowledge Sharing and Knowledge Extraction. The catalyst was that fateful miscommunication between the taxonomist and the web developer.

“That was when we first identified the need for a group dedicated to managing all aspects of not only Knowledge Management, but Information Sciences, or Informatics within JSC. In other words, JSC needed a dedicated group that could speak divided languages using the same

vocabularies. A dedicated group to provide the liaison needed to make projects work effectively to minimize the likelihood of rework and disputes.

That realization was the foundation of the idea for a Knowledge Architecture Office within NASA. The KAO’s role was to enable the sharing of information, and to make it easier for a Knowledge Management Strategy to be implemented on an information science platform.

JSC’s wealth of archived knowledge required different types of extraction capabilities, such as topic modeling, random forest decision trees, time series analysis, and other appropriate extraction techniques applied to our data, to convert JSC’s information data into actionable knowledge.

We developed a framework called Knowledge Architecture, which is a combination of all three of those concepts: (i) Knowledge Management or strategy, (ii) Information Science or informatics, which is the pipeline to transmit the data, and then (iii) Data Science, which provides the algorithms and methods to help us extract the data, and turn it into actionable knowledge. In that sense, the three main functions of the KAO are: Knowledge Management, Knowledge Sharing and then Knowledge Extraction.”

2 | Use Knowledge Informatics to leverage enterprise search

Meza used knowledge informatics - including sentiment analysis, co-word

analysis and time series analysis - to make a persuasive outcome-based argument in favor of Knowledge Architecture and Knowledge Management. The benefits of enterprise search won internal converts who extolled the benefits of Knowledge Management to the rest of the organization.

“There is a group at JSC whose role is to debrief the astronaut as they come down from the International Space Station, asking them questions about life on a space station. How was the equipment? How were the computers? How was the food? How was the training? The sleeping arrangements? Different questions about the pros and cons, what they liked and disliked about the equipment, the systems, and everything they utilized on station.

The debriefs have occurred at the end of every mission, for the last 15 years, when the astronauts return, so we have probably 90,000-plus comments in a SQL database. If a team member initiates a query, for instance ‘Can you tell me what the astronauts thought about the exercise equipment used over the years?’ A Human Factors Engineer would have to go into the database and perform a keyword search on the SQL database. Using the search, the Human Factors Engineer would try to find information using the keywords out of these historic comments, read all of the comments, and try to decipher and give their thoughts about what the Astronauts thought about the exercise equipment. When we’re considering 90,000 historic comments over 15 years, that’s a lot of time for these human factors engineers to have to do that work, and to produce a quality analysis.

The Human Factors Team within NASA asked if there was a way that we could help them out, to better explore the database and reduce their search time and increase effectiveness. Our method was to first determine a specific categorical information needed by the team, in this case the sentiment around the exercise system, and exported all of the comments that were in the same category, and then we applied sentiment analysis to those comments. Now we can tell, based on what the Astronaut was saying, whether that comment was a positive or negative, based on the context they were talking about, which in this case was exercise equipment.

Needless to say, the human factors team were delighted with the results of the analysis and the time reduction achieved. Consequently, the Human Factors Team has become our greatest advocates in the kind of analytical work we’re doing. Our process works equally well on unstructured, as well as structured data, showing the possibilities of what can be done with a Knowledge Architecture framework.”

3 | Host a structured data alignment workshop as part of the planning initiative

“The planning initiative must consider the various requirements for analysis of the data stored across the Knowledge Management Life Cycle. In the initiation phase of a project, team members must understand that the Knowledge Management Life Cycle will often be different to the individual Project Life Cycle. That means, the data collected in one project may provide knowledge or intelligence that is useful to many other projects within or outside of the agency. Those projects may have already come to the end of their life cycle, or they may be running in parallel to other projects, or they may not yet have commenced.”

According to Meza, foundational questions to ask during the alignment workshop include:

- What is the best method for storing information?
- What is the best method for transmitting and sharing the information from an informatics standpoint, to ensure all appropriate people have access to the information?
- Am I going to use an API, and if so, what are the most appropriate specifications?
- What type of database if any am I going to use to store the information, and how should the data be structured within that database?
- How am I going to analyze the data to provide effective analysis of the intelligence contained within the data?

4 | Establish a Master Data Management Plan and Standard Document Specifications

For Meza, the critical success factor in knowledge management is the implementation of standardized protocols around the creation and storage of information.

“When I talk about Knowledge Architecture I discuss my ideas about the information that should be associated with the data and stored to enable ease of use of the data. The critical success factor necessary to implement a Knowledge Architecture framework, that I always mention, is the concept of a Standard Documentation Specification. A Standard Documentation Specification requires a Master Data Management Plan (MDMP).

It is incredibly important to make sure your organization has an MDMP and is able to understand how they’re going to store their data to a Designed Standard Documentation Specification (DSDS). The type of metadata put into that standard documentation specification is critical to the usability and analysis of the data at a later time.”

5 | Consider defining knowledge management standards in RFPs and contracts

“We definitely should be doing more by defining these standards and requirements in our contracts, when we send out RFPs. We should detail our expectation in terms of data storage. But that’s a challenge for today and for the future. As we’ve become more electronic, it’s just now coming to the forefront that we need to do a better job of how we create and store data, and it needs to be incorporated into our procurement contracts. The issue with that now becomes a legal matter. Now this may be interpreted as a deliverable, leading to an extra cost. There is a trade-off between what we can afford and what we can mandate that needs to be carefully determined. The size of projects varying from very large million-dollar contracts, to very small \$200,000 or less contracts also adds another layer of complexity.”

IN CAPITAL PROJECTS THE MAGIC LIES IN THE MAGICIAN, NOT IN THE WAND

BY OLFA HAMDY

Every industry is somehow governed by a set of unspoken rules and assumptions defining what makes that industry different and unique; a set of ideas that are accepted as general truth by the professionals of the industry at large.

In the capital projects industry, that assumption currently manifests itself through a wide acceptance of the “insurmountable” unique complexities that characterize construction projects along with a dramatic shift toward the belief that successful project management depends primarily on tools and practices rather than on people’s skills and competencies.

When I first started in the capital projects management field, I was repeatedly told: “Every construction project is unique, construction heavily depends on people and people are unpredictable; that is why most efforts of standardization are somehow inherently doomed to fail and that is why, low office and field productivity in the world of capital projects will continue to characterize our industry for a long time”.

Greek mythology brings us Sisyphus, a former king punished by the gods to push an immense boulder up a hill and watch it roll down and do it forever. With increasingly unstable and short-cycled economic conditions determining the fate of capital-intensive projects, like Sisyphus, a capital project manager, along with his or her team, seems to be doomed to repeatedly start (again and again) from scratch the process of project formation, embarking on a project delivery journey without any given advantage.

After a journey of passionate interdisciplinary and comparative research applied to the world of capital projects, I have come to realize that 1) conventional project management textbooks, 2) our general and overwhelming pursuit of “best practices” and 3) the industry’s current approach to information technology, no longer seem to be enough in preparing project teams for effective and successful project delivery. On the contrary, we have done very little to empower project teams. For instance, while we have relatively recognized the importance of interoperability and integration in design information exchange, we have long ignored and underestimated the importance of “integrating” teams, work processes, and project activities.

Successful project managers and project directors who have consistently delivered superior value to their organizations and industries, tend to have one common trait: they are all exceptional decision makers with somehow unorthodox approach to defining their management priorities. These capital project thinkers (who have contributed to shaping my view of capital projects) have developed and nurtured their ability to “think critically” in any given situation by making themselves and their teams less and less vulnerable to risk through the power of the right decisions at the right time.

For these successful project professionals, timely decisions drive the process, quality is more important than quantity, teams are more important than practices. For these project leaders, flexibility and predictability

do not contradict each other. They are comfortable with variability and their teams are individually empowered and clearly distinguish between doing one’s job right and dealing with risk. For these successful project professionals, less is more.

I believe we should learn from these exceptional project leaders and organizations who have invested in their project teams’ ability to turn negative into positive by capitalizing on their experience through the power of accountability, alignment and transparency.

For such organizations, when it comes to capital projects, strategically speaking, strong team shaped processes and the effectiveness of their decision making protocols are the source of their competitive edge over the competition. The rest of the project management suite of “tools” is just another cost of doing business, a cost that they remain ready to rethink and adapt as soon as it is proven to jeopardize or limit their competitive advantage.

For such organizations, there is no magical method or tool to achieving project delivery excellence. For the best outcome, shaping clear levels of accountability and enabling transparency around across the project team is a more reliable principle of operation transcending beyond an accumulation of “tools” and the adoption of the latest industry hot idea.

The magic lies in the magician, not in the wand. Let’s build upon that! 🎩

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