ARTICLE

Remote Control

Managing and Delivering Capital Assets with a Distributed Workforce

Disruptions to traditional methodologies and approaches to businesses are seeming to occur more and more frequently, and that is no different for the Capital Projects and Asset Intensive industries.

Many people today are working remotely, but mostly because of urgent necessity and with little thought given to how their organization could sustain the effort over the long term. Transitioning to a distributed workforce is a much larger and very different process than instituting a “work from home” policy, with its own unique issues and potential benefits. In the capital projects and asset intensive industries, it is crucial to develop a distributed workforce strategy and capabilities to adapt to a myriad of disruptions, whether it be a global pandemic, economic recessions, commodity price downturns, natural disasters, pressure to reduce cost, or logistical complications.

Benefits of a Distributed Workforce

While there are times working from home is viewed as a necessity to keep business going, an intentional shift to a distributed workforce can have tangible, trackable benefits. Planning the transition and quantifying benefits across the organization can encourage executive sponsorship of the overall initiative. Potential benefits can include:

Reduced indirect project site cost (temporary facilities, power and utilities, transportation, insurance)

— These savings would likely offset or even outweigh the investment needed to implement capabilities for a remote and distributed workforce; *e.g.*, new systems and technologies

Reduced office space needs and costs

— Reducing permanent offices or offering them on an as-needed basis, and

— Formalize work from home opportunities when and where possible

Reduced travel expenses and per diem

— An obvious benefit when removing travel needs and allowing resources to work from home offices

Expanded pool of potential job candidates and increased retention of talented personnel

— Many talented candidates prefer flexible work arrangements and enhanced work/life balance

— Removing requirements for resource relocation could entice talented candidates to consider joining or staying

Leveraging global resource time zones

— A geographically dispersed workforce can be greatly beneficial when leveraging time zones in a way to extend workdays without requiring overtime

— Cultures with differing work weeks can extend the available working days (*e.g.*, Sundays or Fridays treated as workdays

Reduced environmental impacts and carbon footprints

— Limiting commercial airline travel and daily commutes can improve the overall environmental scorecard for the organization.

Asset Lifecycle Functions and Operations

In asset intensive industries, Asset Lifecycle Management (ALM) is a discipline that comprises several functions, all involving individual processes as well as collaboration among them. Often many of the functions are executed at the project site or the operating capital asset. Some functions include jobs / roles that are essential to remain "on-site" (*e.g.* craft labor, site preparation, deliveries, installation, safety crews, etc.) while several functions could greatly benefit from adopting new processes and systems, or modifications to existing ones, to allow the personnel to perform their responsibilities remotely or in a distributed fashion. These functions are identified in Figure 1.

While this may not necessarily be a "work from home" arrangement, it could help alleviate large groups of people at centralized locations (*e.g.*, project site or plant). Let us consider some of the key approaches for transforming functions to operate successfully in a distributed workforce.

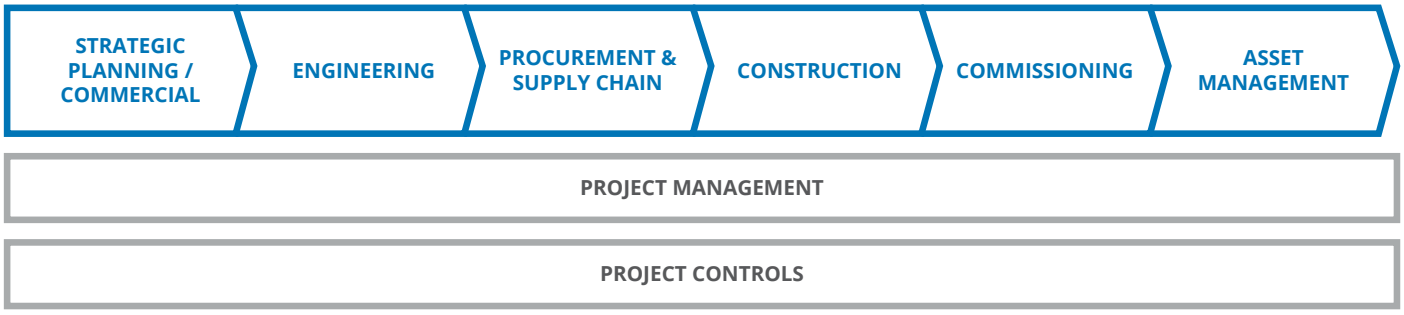

Figure 1. Functional Lifecycle of a Physical Assets.

Four Fundamental Elements of Success

As capital asset management organizations consider alternative business and service models, it is important to consider four elements fundamental to a successful business strategy: People, Process, Technology and Data (PPTD). If approached diligently, this transition to a distributed workforce can create many benefits and bring added value to the functions, processes and enterprise operations. However, if the challenges and barriers to this transition are not addressed properly, negative impacts could occur in the long term.

The four elements of PPTD and the way they network to achieve strategic value in the business lifecycle is illustrated below:

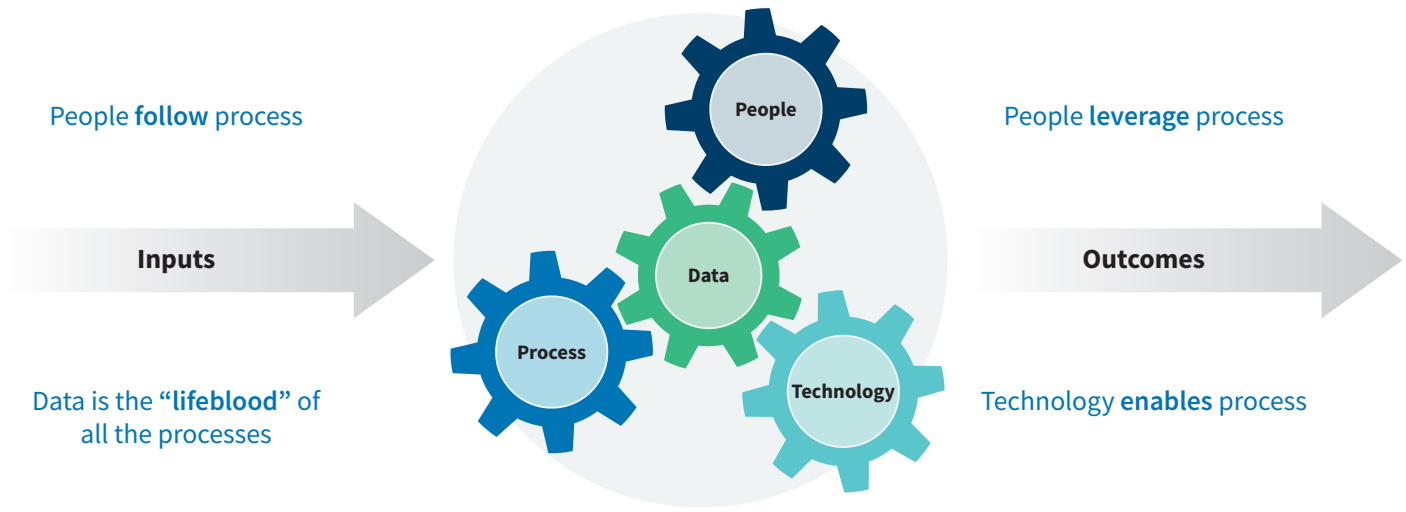

Figure 2. People, Process, Technology and Data Network.

Component	Definition
People	Personnel who execute the processes to deliver the outputs, as well as have the skills and knowledge to leverage technology
Process	Established approach, tasks, responsibilities and expectations that enable the People to be successful with the use of Technology and other means
Data	Integrated digital solutions that enable governance, efficiency, capabilities, and high-quality outcomes to the processes
Technology	The "lifeblood" of all Processes that enables monitoring, reporting, analysis and enhanced decision making for an organization

Best Practices Review

There are several established best practices that can facilitate a successful transition to a remote and distributed workforce. These areas of opportunity can help organizations to enable resilience and continued management and delivery of capital assets during major disruptions.

The following table provides a description of each best practice, a practical example from the functional lifecycle (refer to Figure 1), and identification of the associated PPTD elements (refer to Figure 2).

Ref	Best Practices	Description	Practical Examples	Elements
1	Provide sufficient online (*i.e.* cloud) document and data storage with appropriate collection processes	— Cloud infrastructures improve information accessibility and can be scaled up to account for increasing storage needs — Data warehouse solutions can offer improved data quality, consistency and accuracy of data, which improves reporting capabilities — Integration of multiple enterprise systems, and potentially some external data, can improve situational monitoring and provide timely insights — Management of information and documents within a centralized cloud environment and systems increases ability to control access	— Engineering: Transparency and accountability for modifications and changes to a design can be completed within engineering systems to be part of the permanent record — Project Management & Project Controls: Reports can be standardized and structured to automatically retrieve information and populate dashboards; these reports can also be accessed from online servers or be distributed automatically through email — Construction: Resource and equipment productivity monitoring with real-time output and material tracking — Asset Management: Geospatial data capture of work sites and job locations enabling improved dispatch and routing	Process, Technology, & Data
2	Enhance access to digitally enabled applications and availability of mobile solutions	— Implement or develop mobile applications for easier and more flexible data inputs — Provide crews and field personnel with proper hardware (*e.g.* smartphones, tablets, laptops) and connectivity (*e.g.* Wi-Fi or cellular data) to access online solutions — Create ability to access real-time information and progress updates either in the office, warehouse or field — Reduce paperwork or manual forms that are gathered with inconsistent frequency	— *Commercial:* Increased use of a client relationship management (CRM) tools to track and monitor client interactions and business development; minimize travel for high value opportunities — *Procurement & Supply Chain:* Electronically verify the completion of PO required fields and information; automate the verification of approved vendors and matching to master service agreements — *Procurement & Supply Chain:* Adapt to operate with ecommerce solutions for purchasing and remove inefficient processing steps	Process, Technology, & Data

Ref	Best Practices	Description	Practical Examples	Elements
			— *Construction:* Process change requests from the field and receive approvals via workflow notifications — *Construction:* Access forms from mobile applications and perform inspection leveraging digital checklists — *Asset Management:* Remote work order or job dispatch with mobile crews	
3	Collaborative document review, editing and communication	— Implement a technology solution with document sharing and collaborating — Update document review processes to leverage collaboration tools for commenting or editing company and project documents — Transition away from local document creation and editing (*i.e.* spreadsheets stored on hard drives) to eliminate version control issues and errors, and remove unnecessary rework — Implement alternatives for use of email, which often creates difficult traceability, and leverage better available capabilities in document management solutions and collaboration platforms	— *Commercial:* Increase use of document and information collaboration tools by both commercial teams and the estimators and engineers during proposal development / review — *Commercial:* Leveraging systems and tools for use of workflows and notifications when completing document review and approval steps; automate routing when new documents are uploaded — *Engineering:* Implement systems to enable electronic design document reviews with comments / markups; these can be executed in parallel or in series, with consolidation and approval — *Engineering:* RFIs can be submitted in tools that use correspondence tracking, document storage, commenting, mark-ups, and approvals — *Project Management & Project Controls:* Use of tools with document review and correspondence capabilities will improve communication monitoring and transparency, as well as expediting management responses when needed	People, Process & Technology
4	Clearly define roles, responsibilities and accountabilities; keep these updated regularly	— Clearly define and align roles and responsibilities to the expectations and conditions of a distributed workforce — Routinely inform resources of their assignments and expectations, as well as what others are expected to accomplish; priorities and commitments should be actively managed and adjusted as needed	— *Procurement & Supply Chain:* Leverage use of electronic signatures for approvals (*i.e.* DocuSign) that are aligned with a Delegation of Authority in the organization; integrate within system workflows where possible and eliminate manual interaction — *Engineering:* Develop clear document review matrices to clarify review responsibilities for each type, discipline and submitter of documentation	People, Process & Technology

Ref	Best Practices	Description	Practical Examples	Elements
		— Establish processes and systems to create transparency into monitoring team member accountability — Evaluate existing solutions to determine if they enable resources the proper capabilities to accomplish their remote / distributed responsibilities productively and with appropriate quality; evaluate the level of resource engagement and ownership these solutions allow those resource – seek to modify accordingly	— *Project Management & Project Controls:* Create a Responsible, Accountable, Consulted and Informed (RACI) matrix including all project roles and project stakeholders; update regularly to keep resources informed of any changes and enforce as needed to maintain accountability — *Construction:* Create and maintain schedules for site access areas to minimize unnecessary overlap or disruptions, while maximizing productivity of sequenced work – an EPPM tool is likely necessary to support these capabilities	

Culture Shock – Overcoming Resistance to Change

Changes to an organization's enterprise, processes, objectives, or normal operations can cause significant work disruption and often can create resistance to change. Therefore, it is best practice to prioritize a focus on organizational cultural change management to motivate leadership and personnel for change, instead of being resistant.

Undergoing a large culture shift to a remote and distributed workforce could be challenging, but it is the best way to enhance business resiliency and maintain success in uncertain times. It is also important to understand that not all functions or resources will thrive initially, or at all, in this model; however, the key is to ensure the organization attempts to remove as many barriers as possible to help them be successful. Additionally, there must be an investment to make the change "stick," and not be perceived as a temporary hiatus.

The following section reviews a few cultural changes to consider, but these are certainly not all that may exist.

Culture Changes Needed for a Distributed Workforce

Clearly defining the mission, vision and objectives

— It is critical that this message (mission, vision and objectives) is clear and is reiterated often; deviations from these should be identified and corrected as necessary

— Leadership should be engaged to help define this messaging and cascade it throughout the organization

Incentives for proactiveness

— Incentivizing team members for being proactive and identifying value-added contributions can boost morale and productivity

Open lines of virtual communication

— Instant messaging and video enabled meetings can help resources feel more connected and integrated

— Easy communication access to team members and leadership will expedite resolutions to problems and issues during execution

Encourage flexibility

— A new form of operations requiring outside the office and or outside of the normal work location (*e.g.*, project site or asset), should allow resources the ability to adapt a work schedule that better suits their situation and potentially increases productivity, while not impacting their responsibilities

— Eliminating daily commute times or limiting weekly travel from home locations will reduce unproductive time and reduce distractions

Avoid relapse

— Continue to leverage the successes found from a distributed workforce within future operations

— Successes cannot feel temporary or invalidated if the environment goes back to the previous “normal”

Are You Ready for a Disruption?

Having capabilities to operate with a remote and distributed workforce provides an organization the benefits of weathering disruptions and embracing the trends of the evolving workplace. Additionally, this enables the removal of many preconceived barriers to getting work done, and no longer assuming personnel need to be co-located to be productive. By changing the approach to transforming people, process, technology and data, organizations can be better suited for managing a distributed workforce and more resilient for a disruption.

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