
Time is Money: How Remaining Competitive in Industrial Construction Starts at Pre-Construction



The construction industry is facing global competition and intense price pressure. At the same time, overhead costs are driving down profitability. The technology used in the creation of infrastructure projects continues to receive substantial investment, but the construction industry is still struggling to collectively understand the full benefits that come from front-end engineering design. Major infrastructure projects have the power to be profitable and globally transformative, but they can only do so if they start off on the right foot. When done right, capital infrastructure projects can provide a lasting social impact to go along with a positive return on investment. Too often, though, they don't.

According to recent research, nine out of ten megaprojects that cost \$1 billion or more have cost overruns, including The Channel Tunnel sustaining an 80 percent cost overrun, the Denver International Airport at 200 percent, Boston's Big Dig at 220 percent, and the Sydney Opera House at a staggering 1,400 percent.¹

¹ Bent Flyvbjerg, "The Iron Law of Megaprojects," 8/5/21



Common delays occur because the work is being done in complex, harsh, and remote environments where emerging technologies have yet to be perfected. A worker shortage and lack of technical training and knowledge aren't helping matters. Additionally, insufficient timelines and project management are continuing to increase, as is the inadequate design of foundational elements. With the complexity of infrastructure projects always increasing, things won't be getting easier any time soon. Companies that master the ability to deliver on these large investments are the ones that can position themselves to be highly successful in the construction industry.

To achieve this rare level of success, a clear emphasis needs to be placed on the pre-construction process of any project. Proper infrastructure management and design can guarantee an effective and optimal project delivery, but too often it becomes an afterthought.

When it comes to infrastructure projects, a lack of emphasis on the importance of front-end engineering design is due to flawed reasoning. Often, the thinking is that design changes may be made once construction begins, so why not break ground, start construction, and avoid the cost associated with early-stage engineering. Now more than ever, spending time on early-stage engineering design results in more on-time and on-budget projects.

Safety First: Protect Your Workforce and Your Investment

Every employee has the right to work in a safe environment and every employer is responsible for providing that. This extends to having the proper infrastructure, which helps ensure workplace safety and minimizes risk.

Electrical hazards can result in serious injury or death, and any worker coming in contact with an inadequate electrical infrastructure is at risk of experiencing these life-altering events. This approach to risk management will no doubt benefit the business, but also the worker. When workers are put at risk, accidents happen. When accidents happen, delays occur.

Electrical safety is best suited as a proactive process, and that means having the proper electrical infrastructure in place from the get-go. When managing site safety, it is vital that potential hazards are identified and minimized from the start by implementing the right infrastructure.

Productivity Helps Shape the Profitability of Infrastructure Projects

One analysis of 500 oil and gas industry projects found that 60% experienced scheduled delays and 38% had cost overruns.² Another study of 224 transportation infrastructure projects found that more than 40% of contractors were unable to cover their costs.³

Getting the design and installation of electrical infrastructure correct initially plays a critical role in providing any infrastructure project with a favorable outcome.

The electrical infrastructure is the foundation of the entire project and a corresponding focus on its success should follow accordingly. By doing it right the first time with standardized processes, rework that can wreak havoc on project timelines and creates the need for extra, costly materials becomes preventable. Deloitte estimates that around 90% of major capital projects go over-budget, by an average of 28%.⁴

Looking further at productivity, proper preparation from the start pays for itself and spending the time on early-stage engineering design results in more on-time and on-budget projects.

Scaling Up: Allowing for the Ebbs and Flows of Operational and Production Demands

With technological shifts consistently altering the industrial landscape and fueling the need for infrastructure projects, the correct design guarantees the most effective project delivery. While the proper design can allow for flexibility in the operational and production demand of the moment, it also allows for installation and adaptation down the road.

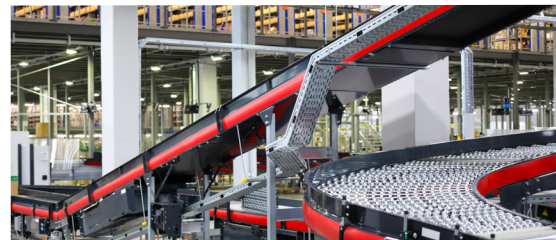
² Mitch Fane, "How to unlock value in oil and gas capital projects in any environment," EY, 9/30/20

³ Richard Korman, "Study Finds Design-Builder Profit Shortfall on Big Infrastructure Projects," Engineering News-Record, 8/24/21

⁴ Mahendra Dedasaniya, Johan VlokDeloitte and Thulani Fakude, "Improving ROI for Capital Projects through Capital Procurement Excellence," 8/18



Technological decisions and environmental factors can make things complicated, and as a result, can oftentimes not be taken into deep enough consideration before launching a project. From the initial design to the desired outcome, project execution can be full of complexity and setbacks when developing its scope and plan. When the decision is made to invest heavily in a new infrastructure project, or in the expansion of an existing one, the desire for a state-of-the-art final product is a given.



Having the right foundation in place even before a project's groundbreaking can determine its on-time delivery and overall success.

Gain Confidence in Your Project's ROI by Driving Reliability

Despite the tendency for missed deadlines and missed budgets, infrastructure projects continue to be in high demand across a wide range of industries, and there's no sign of demand slowing down. The global infrastructure construction market is expected to grow from \$2.4 to \$3.3 billion between 2021 and 2027.⁵ Infrastructure investments in emerging markets continue to grow, and for companies that complete them successfully, megaprojects play a critical role in profitability.

A proven way to solidify the success and profitability of any infrastructure project is by partnering with the right manufacturers and utilizing the right solutions that adhere to the right electrical standards. Focusing on solutions and standards sets industrial construction projects up for success during the early design and installation of a project, and ensures performance and design consistency of products that are vital to success.

A Proper Electrical Design Ensures Business Outcomes

Standards compliance plays a pivotal role in making any design and installation successful, and it provides engineers and procurement with a baseline to read beyond a marketing promise. It allows for the comparison of like products and highlights a product's ability to get the job done because it has already been tested rigorously to prove reliability. With most infrastructure projects reaching an international scale, standards are also critical in ensuring the seamless integration and safety of these proven products when working across borders.



⁵ Mordor Intelligence, 2022, "Global Infrastructure Construction Market - Growth, Trends, Covid - 19 Impact, and Forecasts" (2022 - 2027)

The proper design and installation of electrical grounding and cable cleats that meet standards is important. It allows for an installation that increases productivity, with the likelihood of costly rework and adjustments being reduced significantly. A proper electrical foundation helps guarantee that a project is built to improve system reliability; more importantly, it provides a safe work environment.



Panduit solutions hold a variety of the most common heavy industry certifications and approvals worldwide, like UL 467, IEEE 837-2014, and IEC 61914-2015, and are engineered for the benefit of designers, installers, and maintenance of industrial infrastructure in accordance to standards like IEEE 1100, IEEE 493, and TIA 942.

Infrastructure projects are critical to our future. They have the power to transform industries, shape our communities, and positively impact the countless lives of individuals around the world. Building and maintaining infrastructure is an important undertaking; but upon completion, infrastructure projects must have been completed successfully for them to work as intended and create a positive impact. The risks associated with infrastructure projects are well documented, but so are the rewards reaped by the companies that master the ability to deliver successful projects. By placing a priority on front-end engineering design, this can be achieved.

Choosing the right infrastructure foundation will not only contribute to the productivity, scalability, reliability, and safety needed to deliver a project on-time and on-budget, but solidify its future as well.





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