

## IDC PERSPECTIVE

# Buyer Case Study: Infosys and Prysmian Group Come Together for an Innovative and Sustainable Solution for Overhead Conductor Management

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## EXECUTIVE SNAPSHOT

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### FIGURE 1

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#### Executive Snapshot: Infosys and Prysmian Group Come Together for an Innovative and Sustainable Solution for Conductor Cable Management

This IDC Perspective demonstrates how sustainability initiatives are facilitated by digital engineering while addressing business transformation. General Cable, a Prysmian Group company, devised the E3X coating that was to be applied on the aging cable conductors without shutting down the grid to reduce the power loss. Infosys was chosen as the partner to engineer a suitable solution to address this complex problem.

#### Key Takeaways

- Aging overhead conductor transmission lines can be susceptible to transmission loss and consequent increase in carbon footprint. Prysmian Group's E3X coating can reduce this transmission loss, improve ampacity (maximum current that any conductor can carry without exceeding its temperature rating), and reduce the carbon emission footprint of the existing transmission line infrastructure.
- To solve the challenges related to manually cleaning the existing conductors and applying the E3X coating on the conductors during service, Prysmian Group and Infosys collaborated to design the E3X Robot System for cleaning and coating the conductors.
- The E3X Robot System reduces overhead conductor transmission losses and overall carbon footprint.

#### Recommended Actions

- For any product life-cycle or operations situation, determine the areas of business where sustainability directly correlates with product design, engineering, development, and operational technology (OT).
- Embed sustainability thinking across all stages of engineering, starting from design to development to deployment to management, by making it an integral part of the technology road map.
- Define the metrics that can track the effectiveness of sustainability in engineering and OT services, then evaluate midterm and long-term ROI estimates of sustainability in engineering and OT services.
- Explore the impact of deploying next-generation digital technologies — such as 5G/edge, AI/ML, robotics, and AR/VR — and how they can support your sustainability goals.

Source: IDC, 2023

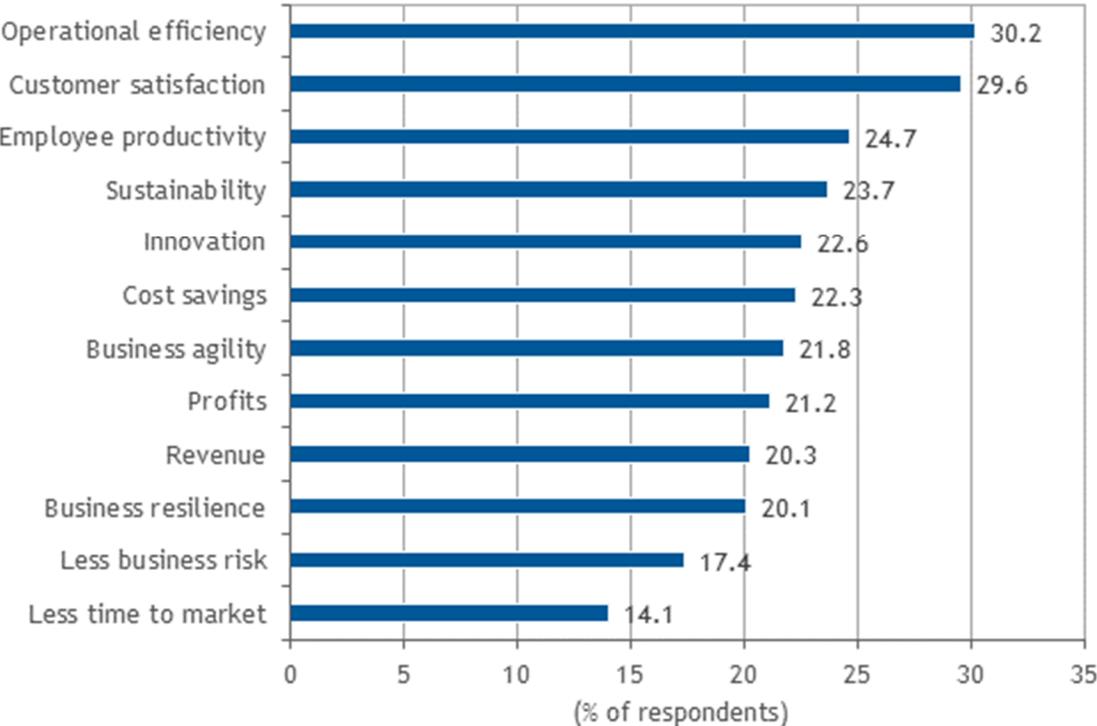
## SITUATION OVERVIEW

Digital engineering and operational technology (DEOT) services are gaining traction across industries as enterprises explore new digital technologies and methodologies to innovate faster to enhance customer experience (CX), improve operational efficiency, and improve employee productivity. Based on IDC's *Future of Enterprise Resiliency Survey (FERS), Wave 11*, improving operational efficiency, enhancing customer experience and satisfaction, improving employee productivity, and building sustainability initiatives are the major business priorities that enterprises are focusing their investments (see Figure 2).

FIGURE 2

### Organization's Business Priorities for 2022

Q. What are your organization's top 3 business priorities?



n = 840

Source: IDC's *Future of Enterprise Resiliency Survey, Wave 11*, December 2022

Current market dynamics require enterprises to differentiate their products and services against the competition, which makes it imperative for them to engage in continuous innovation, improve operations efficiency, and improve employee productivity by using digital technologies such as Internet of Things (IoT), augmented reality/virtual reality (AR/VR), digital thread/twins, edge computing, 5G, artificial intelligence/machine learning (AI/ML), analytics, cloud, robotics, and 3D printing. DEOT service providers bring these competencies in the form of structured offerings that can modernize and

transform the infrastructure, products, platforms, processes, and operations and can bring in the necessarily experienced talent pool that can address the enterprise's business problems. Over the years, these service providers have been formulating end-to-end solutions and services offerings, which include consulting, design and engineering, deployment, integration and orchestration, and managed services that can be tailored for vertical-specific business needs. Most of these solutions are built on agile platforms, which enable end-user enterprises to meet their end-customer expectations, reduce the time to market, and gain a competitive advantage.

## Increasing Focus on Sustainability and Its Drivers

Sustainability initiatives are gaining ground among enterprises and are a key strategic initiative for their ESG goals. These initiatives are driven by senior management and expand across functions such as strategy, operations, finance, human capital management, supply chain, and material management. While these should be observed and deployed across the enterprise, their foundation lies in product engineering and life-cycle management (from the concept stage to the end of life) and across the enterprise's operations. Objectives such as modernizing front- and back-end processes; implementing suitable technology to modernize operations; deploying suitable infrastructure; monitoring and managing assets, processes, and resources; strategizing; and sourcing all fall under the umbrella of enterprise-wide sustainability initiatives. Some key drivers and trends of sustainability include:

- Increasing government regulations globally that mandate enterprises to reduce and neutralize their carbon footprint
- An increasing focus on using renewable sources of energy and reducing the carbon footprint of consumers and businesses (These are witnessed across different stages of existing product modernization and new product development.)
- Long-term benefits of cost reduction through alternative sourcing, waste management, optimizing resources, alternative product and platform building capabilities, and so forth

## Challenges in Achieving Sustainability Goals

While enterprise sustainability is a major theme for an enterprise's short- and long-term strategy, it is not free of challenges. There are pitfalls (direct and indirect), which include:

- **Existing legacy infrastructure.** The modernization of asset-heavy operations running on legacy systems is quite challenging for enterprises, especially from a sustainability standpoint. The older an asset gets, the more its contribution to the carbon footprint increases. Full-fledged revamping of the assets, infrastructure, and processes can be costly.
- **Asset monitoring and downtime reduction.** Monitoring assets and reducing their downtime is critical for resilient operations, as any type of fault or downtime negatively impacts the operations and related processes as well as the enterprise's sustainability goals. Building suitable AI/ML algorithm-based solutions such as fault tree assessment and predictive/prescriptive analytics provides the ability to constantly monitor the health of these assets, reduce the probability of fault occurrences, reduce the downtime of the assets/infrastructure, and improve resource utilization.
- **Product design and innovation.** Product specifications, design, and life-cycle processes determine the level of waste/emissions and hence impact sustainability. The number of iterations increases the scrap/waste that must be taken into consideration. Choice of materials used, design and engineering, manufacturing, and so forth all play significant roles in determining emission, wastage, and management of resources. Advanced engineering tools, platforms, and solutions are required for addressing sustainability needs across all stages of product development and innovation.

- **Operations management.** A critical challenge is managing those operations where the wastage, emission, and energy consumption are higher. Adequate automation, connected ecosystem, servitization, automated cognitive operations management, and remote monitoring are some of the major actions needed to reduce carbon emissions, minimize wastage, and achieve sustainability goals.
- **Increasing operating cost.** With increased consumption and resource requirements, the cost of operations is increasing. Apart from talent, which is expensive because of the increasing need for niche skills, the cost of procurement is also growing year on year because of inflation, supply chain constraints, and evolving geopolitical dynamics. Enterprises must focus on constant innovation related to sourcing and operations functions to achieve carbon neutrality and sustainability goals.
- **Requirements for constant R&D.** An increased focus on achieving carbon neutrality, reducing carbon footprint, and improving sustainable products, services, and processes requires enterprises to increase investments for innovation across different components of the value chain. Hence, it is imperative for enterprises to increase their planned R&D investments and make sustainability an integral part of product engineering and operations processes.
- **Life-cycle carbon emissions.** The carbon footprint from product manufacturing can be reduced and is within the control of the enterprise. Carbon emissions from product usage throughout its life cycle can be much larger than production emissions, especially for products that can last for decades. Reducing these Scope 3 emissions from product usage throughout the life cycle can be a much greater challenge than reducing emissions due to operations.

A key aspect is to focus on the benefits more than the challenges when it comes to enterprise sustainability. For example, the cost may be a key challenge for delivering enterprise sustainability standards and initiatives, achieving carbon neutrality, and reducing wastage but one must keep in mind that long-term cost benefits will always supersede the short-term investment challenges. While DEOT service providers are focusing on building and managing innovative solutions for enterprises, building sustainability at every stage of product development and life-cycle management as well as across each operation level becomes imperative. Engineering service providers are focused on building this capability for their customers' products and operations.

## Digital Engineering in Resource Management

Fundamentals of sustainable resource management include optimizing the resource procurement and usage so that it does not deplete and impact current and future generations. For enterprises across industry verticals, this is becoming a focus area when it comes to their sustainability strategy and ESG goals. This requires operations transformation, building a data-driven and proactive decision-making system, and determining ways to optimize resources' requirements and maximize their utilization. Enterprises are gradually adopting next-generation digital technologies such as cloud, IoT, AI/ML, reality technologies (e.g., AR, VR, MR), automation and robotics, digital twins/threads, 5G, edge computing, and blockchain as a part of their digital transformation (DX) strategy. Deploying these technologies enables them to drive visibility across its assets, processes, and people, facilitate data-driven decision making with the aid of predictive analytics, reduce asset/process downtime, build resiliency across its value chain, and ensure a superior customer experience.

These value propositions, in turn, are attribute to an enterprise's objectives to optimize resource utilization and reduce wastage while also reducing operating costs and improving operating efficiency. Examples of how these digital technologies contribute to an enterprise's sustainability initiatives include the following:

- **Reducing operational overhead in energy and utilities** – Managing energy and utility infrastructure, especially geographically dispersed facilities and other critical equipment can be quite cumbersome and requires a large field setup to manage. Building remote monitoring and management through AR/VR and the digital twins of the energy grid infrastructure can not only reduce such overhead but also facilitate the required optimization of energy management and troubleshooting.
- **Establishing remote field operation in telecom** – A key challenge in the telecom sector is having the field operation to manage and troubleshoot geographically dispersed radio and transport networks. Implementing remote monitoring and predictive maintenance of these critical infrastructures by using next-generation digital engineering services such as digital twins/threads, AI/ML, and IoT can help telecom operators optimize resource requirements while alleviating opex pressure.
- **Increasing visibility and optimizing resource utilization in the manufacturing setup** – Consumption of energy sources is a key area of focus for manufacturing enterprises where digital technologies such as IoT and AI/ML play a key role in optimization. Sensors and actuators placed across the industrial ecosystem and DEOT service providers' platforms enable manufacturing enterprises to optimize energy, water, fuel, chemical, and so forth. This is achieved by using a 360-degree real-time monitoring or utilization system, which can help forecast future usage and take any required corrective actions that in turn, will help improve productivity, reduce wastage, and reduce cost.
- **Reducing transport inefficiencies for mining** – A key challenge of mining companies is the management of many moving assets, which has operational and cost implications. Building efficient routing for the inbound/outbound and on-campus transport, monitoring carriage and shipments, and optimizing fuel consumption, battery management systems, maintenance, and repair solutions through digital technologies such as predictive analytics and AI/ML can not only increase operational agility but also reduce cost and carbon footprint.
- **Improving building management solutions** – Real estate and infrastructure management have benefitted from next-generation digital technologies such as IoT, AI/ML, edge and 5G, AR/VR, digital twins, and blockchain in terms of optimizing resources such as energy, water, and communication bandwidth. These technologies enable real estate companies and facility management firms to make more effective decisions on improving the utilization of resources reducing wastage through predictive analytics on the data across various types of assets.
- **Virtual prototyping and reducing wastage** – Physical prototyping can increase the wastage of materials used and hence aid in the increased carbon footprint. Creating fully virtual prototypes by using digital twins, AR/VR, and the metaverse for customer demonstration can not only reduce carbon footprint but also reduce costs and risks to businesses.

DEOT service providers play a key role in driving their customer's resource management needs and delivering sustainability objectives. Service providers are exploiting next-generation digital technologies such as IoT, AI/ML, 5G, edge, and digital twins in product engineering and development by bringing them as the enabler for operational efficiency with an objective to enhance profitability, optimize cost, reduce wastage, and reduce carbon footprint. The role of these service providers is expected to grow as sustainability becomes a mainstream strategic initiative for enterprises.

## Prysmian Group Case Study

Prysmian Group is one of the leading operators in the energy and telecom cable systems industry. With almost 150 years of experience, sales of over \$15 billion, and about 29,000 employees in over 50 countries and 108 plants, the Group is well positioned in high-tech markets and offers a wide range of

products, services, technologies, and know-how. It operates in the businesses of underground and submarine cables and systems for power transmission and distribution, of special cables for applications in many different industries, and of medium- and low-voltage cables for the construction and infrastructure sectors. For the telecommunications industry, the Group manufactures cables and accessories for voice, video, and data transmission, offering a comprehensive range of optical fibers, optical and copper cables, and connectivity systems.

### ***Business Challenge***

The power transmission grid needs upgrades to overcome issues – such as powerline congestion from increasing amounts of renewable generation, line losses, and the associated carbon emissions – and to improve reliability and safety. New lines cannot be built fast enough to meet the needs of the grid. There is a need for innovative, scientifically proven, industry-acceptable technology that can be rapidly implemented at scale without the cost and delay of lengthy permitting and construction associated with building new lines.

Prysmian Group conceived the concept of retrofitting existing transmission lines with a high-performance coating that can enable improved power flow. By using a robotic application process to apply the high-emissivity/low-absorptivity E3X coating to existing transmission conductors, capacity can be unlocked, line losses can be lowered, and the safety and reliability of the grid can be improved.

This high-emissivity/low-absorptivity coating concept has been used in the factory for new conductors since 2015 and has been well received by the utility industry with dozens of utility deployments. However, the miles of new conductors deployed each year is only a small fraction of the total transmission grid. A much larger opportunity to enhance the grid is to retrofit existing lines with a high-emissivity/low-absorptivity coating. An efficient technology solution needed to be developed to upgrade the many thousands of miles of existing transmission conductors to unlock more capacity from the nation's grid.

### ***Consideration for a Suitable Cleaning and Coating Solution***

Infosys Advanced Engineering Group (AEG) was approached with the previously mentioned business challenge of cleaning the conductors and applying E3X coating material to enhance ampacity and reduce the power losses of overhead transmission lines.

Infosys AEG brings its rich experience in solving complex engineering problems for clients. This strategic group focuses on areas such as Industrial IoT and Industry 4.0, robotics and autonomous systems, AI/ML, AR/VR, composites and advanced materials, knowledge-based engineering, additive manufacturing, and advanced simulations to deliver appropriate solutions across verticals such as aerospace, automotive, turbomachinery, heavy engineering, oil and gas, utilities, mining, medical devices, and fintech devices. Infosys AEG has published 200+ technical papers and 20+ patents, participated in 10+ standards documents and international reports, and received 50+ awards and recognitions. For Infosys AEG, this was a new account opening, and the project started in November 2016 with a phased approach.

The following factors were taken into consideration for selecting a suitable solution to apply the E3X coating onto the existing overhead conductor:

- Manually coating the material can be extremely challenging and technically nonviable. The choice of drone-based systems or robots is ideal for applying the coating, with oversight from the control center by using a ground monitoring system. The vast transmission and distribution

ecosystem, in many cases, requires a distributed administration in operating these drones and robots, thus making the infrastructural setup more complex.

- External climatic/atmospheric factors play a key role in selecting and applying the E3X coating on the transmission conductor.
- Alignment plays a key role in the success of deploying the E3X coating. The drones and robots should be constantly aligned with the overhead conductor, which makes the management and orchestration of the coating exercise more complex in the actual environment.
- While the alignment of drones or robots is a challenge, it is also imperative to investigate the connectivity that must be seamless for controlling these objects. Depending on the requirement, a suitable connectivity option is chosen, which can allow seamless and reliable access to the drones or robots.
- With the sag of the conductor in the midspan and the inclination of the conductor close to the poles, any obstacles on the conductor should be taken care of while cleaning and coating the conductor.
- Remotely monitoring the 360-degree cleaning and coating performance should ensure the efficiency of the coating applied, with the required thickness and quality requirements.

Infosys provided an outline of the proposed solution, using various advanced technologies such as drones and robots. This problem in the utility industry is the first of its kind, as there is no known prior commercial solution in existence. Infosys displayed advanced engineering services expertise and the ability to solve similar industry-leading solutions. Based on the merit of the solution proposed, Prysmian Group awarded Infosys the opportunity to execute this project in a phased manner with a gating criterion on the outcome for each of the phases. Both Infosys and Prysmian Group agreed to stop the project whenever it became technically infeasible and commercially nonviable.

### ***Advanced Robotic Solution for Cleaning and Coating the Conductors***

Infosys designed and developed the E3X Robot System for cleaning and coating the overhead conductor which has the potential to work both in energized and unenergized conditions. The initial requirement was to design a system that cleaned and coated a conductor installed between two poles, with a distance that can vary from 300ft to 3,000ft. The system should be able to operate in all terrains and should be able to climb a 2% sag of conductor span. For a 1,000ft span, the sag will be 20ft with a 2% sag of the conductor. Crossing small hurdles and cleaning/coating wire bundles with spacers is not part of the initial scope.

Infosys designed an innovative contact-based coating concept through a foam-based coating application mechanism that can provide a high-performance coating with minimal or no wastage of coating material. In addition, the application system is designed with a swivel mechanism with springs that can easily adapt to different conductor sizes and the splices (conductor joints) or tolerances with two times the size of the conductor, including broken strands. This robust system has a plug-and-play approach for the brush, traction, and locking wheels of the swivel mechanism to use the same robot on a broader range of conductor diameters. This eliminates multiple system designs for various conductor sizes. Infosys also proposed multiple options for the cleaning brushes and coating of the conductor. The company equipped the robots with advanced LiDAR and vision technology to stop themselves in case of any obstacles on their path. Infosys also has state-of-the-art vision technology to assess the quality of the cleaning and coating operations live from the control center. It utilizes advanced RF-based communication technology to communicate between the robot and the ground monitoring station. The robots have good mounting and dismounting features to help operators in the field from a bucket truck with the crane kept 10ft away instead of using a helicopter. This reduces the operation cost drastically,

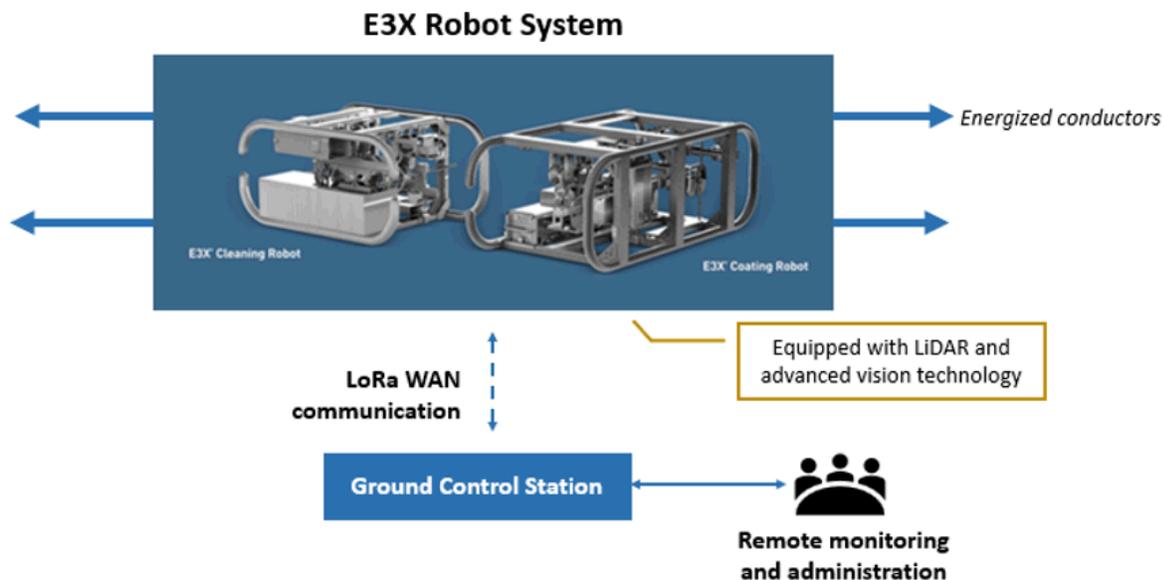
as it is 90% of the overall cost of the operation. The robots utilize Infosys' autonomous system platform to move themselves autonomously on the conductor from one end of the pole to the other. The robots have the following innovative features:

- Redundant long-range communication (LoRa) between the robot and the ground station for enhanced safety
- Post-operation data collection for data analytics and predictive maintenance and warranty estimates of commercial off-the-shelf (COTS) items
- Detailed report generation on the operation performed to enable end-client billing
- RSSI for the network coverage and strength of RF communication
- WiTDM for enhanced vision technology with continuous HD streaming of cameras
- Multiple robot operations from a single ground monitoring system
- Handheld remote-based RF communication for various robot operations such as starting/stopping motors, pumping, obstacle overriding, and shutting down the operating system remotely before powering off the robots
- Ability to maneuver over splices and cater to various diameters of the transmission line with the plug-and-play wheel concept
- Capability to install and uninstall bucket truck cranes kept 10ft away from the powerline to ensure the safety of the field operation crew
- Operation parameters that can be stored and utilized to improve efficiencies of the certified wiremen time

Figure 3 demonstrates the overview of the E3X Robot System operation.

**FIGURE 3**

**E3X Robot System Operation**



Note: The figure was created in collaboration with Infosys and Prysmian Group.

Source: IDC, 2023

## Benefits

This robotics innovation project provides substantial innovation for the energy and utilities industry. According to Infosys and Prysmian Group, the E3X coated conductor delivered the following benefits:

- **Accelerated capacity.** In 2019, 90% of planned renewables in the United States were stuck in transmission interconnection queues, waiting for transmission capacity. New construction projects often take over a decade for required permitting. The E3X robot is among the fastest ways to deliver needed capacity (source: Jay Caspary, *Institute of Electrical and Electronics Engineers*, "Microgrids from an Economic Policy Perspective," [site.ieee.org/wms/files/2021/05/Caspary-IEEE-Western-MI-52521-DRAFT.pdf](https://www.ieee.org/wms/files/2021/05/Caspary-IEEE-Western-MI-52521-DRAFT.pdf), May 25, 2021).
- **Improved operations metrics.** It increased the ampacity by up to 25% without replacing conductors or transmission towers, which reduced costs and reduced the carbon footprint.
- **Savings.** \$6 billion worth of energy is lost in the transmission and distribution network in the United States. It reduced transmission loss by up to 25% (source: Dave Shadle, *T&D World*, "Are Utility Electrical Losses Declining?", [www.tdworld.com/overhead-transmission/article/21246497/are-utility-electrical-losses-declining](https://www.tdworld.com/overhead-transmission/article/21246497/are-utility-electrical-losses-declining), July 19, 2022).
- **Increased safety.** It reduces the operating temperature by up to 20%, which resulted in reduced sag and an improved safety margin for both reliability and safety clearance for high-voltage lines (source: Philip Irminger et al., *Oak Ridge National Laboratory*, "Report on Oak Ridge National Laboratory Testing of Ambient Cure TransPowr E3X," [info.ornl.gov/sites/publications/Files/Pub138393.pdf](https://info.ornl.gov/sites/publications/Files/Pub138393.pdf), April 2020).
- **Supported sustainability agenda.** This has become a key project for Prysmian Group as a part of its sustainability initiative.

## Recognition and Way Forward

This project demonstrated Infosys's capability in end-to-end R&D product development, from concept to industrialization to commercialization. This unique and innovative solution won the Gold at Edison Awards 2022 and became a milestone for both Prysmian Group and Infosys AEG in the domain of robotics and autonomous systems. The patent for this robotic solution was granted, and it was jointly filed by Prysmian Group and Infosys.

Such solutions can be a landmark for both DEOT service providers and the end-user enterprises, which not only helps to improve operations efficiency but also creates significant business value and differentiation in an enterprise's digital transformation and sustainability journey.

As a way forward, Infosys should focus on the following:

- **Refine and augment** – The uniqueness and complexity of the solution will require further refining and cross-pollinating the solution with similar solutions from the same or related business units.
- **Showcase** – This solution should be demonstrated to other clients in the same or across different verticals as a state-of-the-art solution.
- **Cobuild and codevelop** – There are significant opportunities for the engineering service provider to cocreate use cases and solutions with other customers and partners keeping this solution as the core.
- **"Platformize" in the future** – Create monetizable robotics and horizontal autonomous system platforms, then build customizations around them as required by enterprises across various verticals.

## ADVICE FOR THE TECHNOLOGY BUYER

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From this case study, it is evident that digital engineering and operational technology services can play an imperative role in solving complex engineering problems and addressing, directly and indirectly, sustainability initiatives. IDC recommends the following for enterprises regarding how digital engineering services can effectively solve challenging business or technology problems and how partnering with an enterprise can result in successfully executing their sustainability road map:

- **Look for, build, and solve complex engineering problems.** Enterprises must constantly seek opportunities where their products, services, operations, and so forth can be transformed with the aid of solving complex business problems. Connecting these engineering services opportunities with both business and operational resiliency while augmenting the user experience is imperative for enterprises to generate more value.
- **Build a direct correlation with sustainability.** Enterprises require DEOT service providers to determine the areas of business and processes where sustainability directly correlates with product design, engineering, development, and operational technology. In most cases, DEOT service providers' capabilities can be part of the solution and can both enable and make the process much faster, more agile, and more effective.
- **Include sustainability in the "engineering road map."** Sustainability must be built across all stages of engineering solutions, solution development, and deployment process. When DEOT service providers build the engineering road map for the end-user enterprises, they should be tasked with including the sustainability angle.
- **Explore digital technologies for sustainability.** Organizations must explore next-gen digital technologies – such as cloud, AI/ML, IoT, blockchain, 5G, edge computing, AR/VR/MR, and digital twin/thread – as enablers to solving complex engineering problems and determine how these technologies can facilitate them to achieve sustainability targets.
- **Evaluate short- and long-term ROI implications.** Sustainability initiatives require a significant investment of time and resources, so it is crucial for enterprises to estimate the short- and long-term implications of embedding sustainability in engineering solutions.
- **Build and track metrics, and get management's buy-in.** It's important to not only explore opportunities for sustainability initiatives but also build metrics that can track the effectiveness of sustainability in engineering. This becomes a key aspect in management's buy-in for enterprisewide sustainability initiatives.
- **Build the right partnerships.** Partnerships with DEOT service providers are imperative, as they bring in the required expertise and enable their customers to address engineering problems, apply engineering services to other parts of the business, and address sustainability objectives through engineering services.
- **Focus on the talent ecosystem.** The talent ecosystem plays a key role in successfully delivering a complex engineering solution. It is recommended that you build your domain and technology-specific talent pool and collaborate with your engineering services partners and other ecosystem entities for hard-to-find and expensive talent.

Sustainability is a long-term strategic initiative and will require significant efforts to incorporate it with an enterprise's products, processes, and people. DEOT service providers are building capabilities that can complement an enterprise's sustainability initiative, from sourcing to post-deployment management of their engineering problems. The right partnership with the right service provider can not only enable an enterprises to solve the complex engineering problem at hand but also enable them to achieve waste

reduction, reduce their carbon footprint, meet regulatory criteria, and improve governance – all of which forms the rudimentary aspects of sustainability with the help of appropriate digital technologies.

## LEARN MORE

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### Related Research

- *Digital Engineering and Operational Technology Services Case Studies - Part 3* (IDC #US48533622, September 2022)
- *Market Analysis Perspective: Worldwide Digital Engineering and OT Services, 2022* (IDC #US49670622, September 2022)
- *IDC PlanScape: Sustainable Business Strategy* (IDC #US48888721, March 2022)
- *Getting Deep into 5G and Edge Services and Their Implication for Enterprise's Operations* (IDC #US48533322, February 2022)
- *Worldwide Digital Engineering and Operational Technology Services Provider Showcase Report* (IDC #US45853420, December 2021)
- *Digital Engineering and Operational Technology Services Case Studies - Part 2* (IDC #US48334821, October 2021)

### Synopsis

This IDC Perspective describes how Prysmian Group's innovative E3X coating deployment was facilitated by Infosys Advanced Engineering Group through an advanced robotic solution. Aging cables are susceptible to transmission loss and hence result in power wastage. To avoid these, Prysmian Group developed an innovative coating that can improve the ampacity of the transmission lines, reduce operating temperature, and hence reduce transmission loss. Applying this coating on the energized conductor is complex and can be life-threatening for the wiremen. Infosys addresses this problem by building an advanced robotic solution to clean and then coat the conductors, which are more than 25 years old and expand across several states in the United States. This case study not only highlights how intricate business challenges can be handled by digital engineering and OT (DEOT) service providers but also showcases how these engineering solutions can support an enterprise's sustainability initiatives.

This project also demonstrates DEOT service providers' capability in end-to-end R&D product development, from concept to industrialization to commercialization. The uniqueness of the solution and innovation behind it won the Gold at Edison Awards 2022 and became a milestone in the field of robotics and autonomous systems.

"The E3X Robot System is a prominent example of how engineering service providers can address the complex business problems of their customers. This innovative solution and further engagements to enhance the solution not only represent how such solutions can be scaled up but also support customers' sustainability goals. Hence enterprise buyers should focus on the digital transformation journey of their products, services, and operations to solve real-life high-value engineering problems and choose the right engineering partners to address those while delivering on their organization's sustainability objectives." – Abhishek Mukherjee, associate research manager, Digital Engineering and OT services at IDC

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