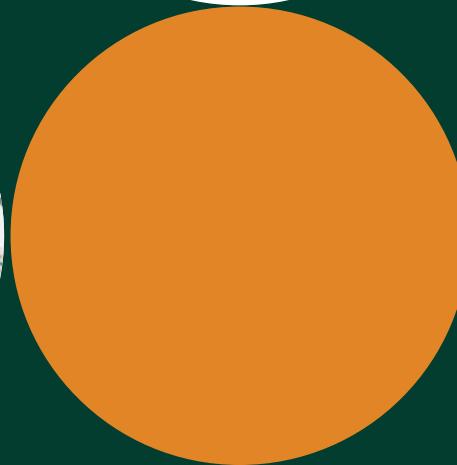
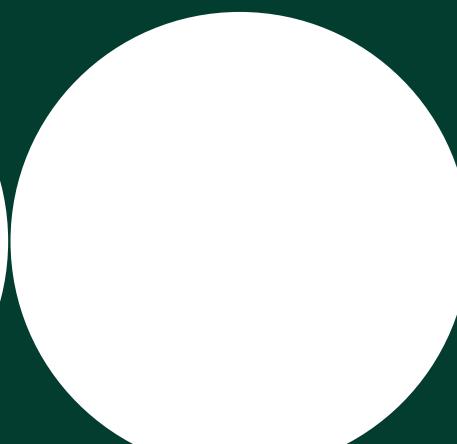
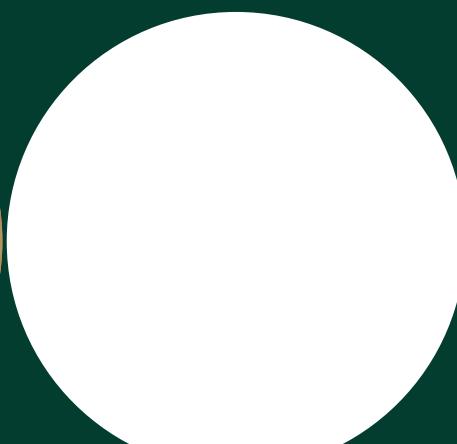


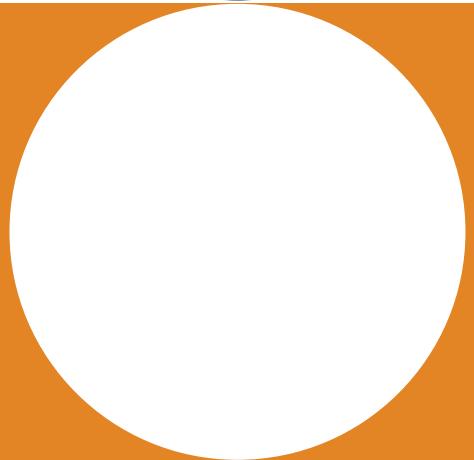
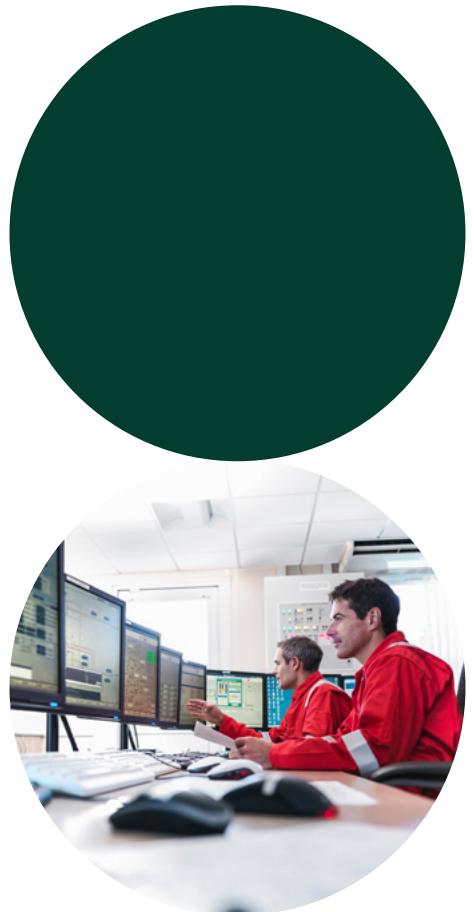
The OT Conversation Guide:

How to Talk to IT and the
C-Suite to Get the Greenlight
on Transformation



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Introduction

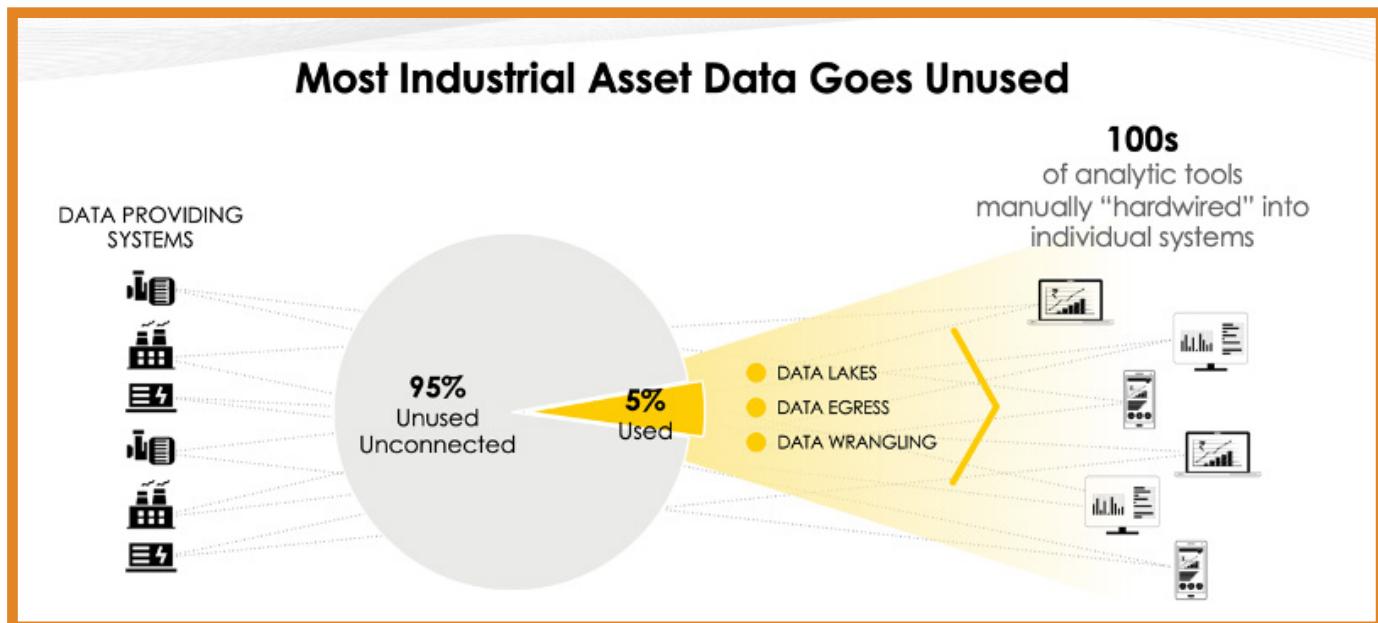
How to Have “The Talk”

If you’re like the majority of industrial organizations, your OT team is navigating digital transformation – as well as a number of dizzying demands. Pilots. POCs. Pressures to adopt new edge computing technologies and to go faster, faster, and faster still. Each of these requests risks lost productivity and revenue. But, on the other side of the digital divide also lies tremendous opportunity to improve efficiency, output and safety.

The path to that promised land inevitably runs right through OT/IT convergence. The ability to integrate, contextualize and govern your industrial data depends critically on the ability for operations and IT to collaborate – as well as your success in convincing C-Suite sponsors to fund and champion your initiatives.

The challenge is, as you’re also likely to be keenly aware of, operations data is fundamentally different. Time-series and other OT data collected from assets is spread across many plant sites, locked up in legacy systems at the plant and in engineers’ spreadsheets. OT data has notoriously demonstrated low quality, attributed to a lack of metadata to provide context, and no standardization because of poor and inconsistent data labeling. What’s more, OT data is some of the most ungoverned and ungovernable data.

As a result, currently as much as 95% of industrial data goes unused – or, at best, it’s leveraged at a local level and via homegrown solutions that can’t scale to meet the universal needs of a large-scale industrial company. One solution, in one location, won’t scale to the rest of the business – and learnings cannot be shared.





What you ultimately want and need is trusted data from your equipment, sensors and analytics. Productivity depends on it. Profitability depends on it. Safety and lives depend on it. And, generally, IT wants to deliver it.

So, with the stakes so high and your two disciplines historically so siloed, how do you have the conversations required to get on the same page with IT about technology, processes and people? And how do you convince colleagues that digital transformation can leverage the value in your legacy data and systems without having to deal with costly disruptions and ripping/replacing what works?

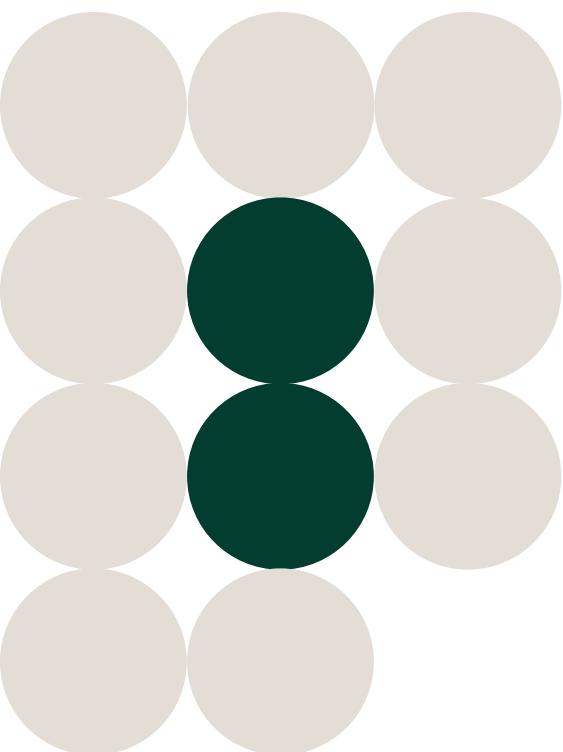
OT/IT alignment takes new thinking, new data architectures, and old-fashioned human empathy to gain the perspective you need to share roles and responsibilities. It requires understanding of how to leverage and maximize IT and OT investments to get the most out of existing data and infrastructure. It demands that you connect data in its source systems on premises and in the cloud. This is how you can create an operational model for starting business-critical transformation projects, deploying them and sustaining them.

This conversation guide will make it plain how to speak to colleagues, help handle objections, and get the greenlight OT and IT are after to move with speed. Read on and discover:

- Why OT/IT convergence is more business critical than ever
- How IT can better understand operations' perspective and better collaborate
- Conversation tips and strategies for getting the greenlights you need
- Real-world examples of turning convergence into dramatic cost savings with the new Element Unify™ operations data management solution

Why Now More Than Ever?

There is no single factor creating the tipping point for OT/IT convergence. Rather, there is a perfect storm of process, market, organizational and technological dynamics driving business-critical convergence today. From strengthening safety and security to driving efficiencies and bottom-line impact across the board, your organization's ability to move forward with its digital transformation initiatives relies on your ability address these imperatives together – while also recognizing that you may typically approach these challenges from different angles.



1. Resiliency and Agility

Asset owners and operators increasingly face exposure to shocks, vulnerabilities, and financial losses. In order to assure security, safety and business continuity, OT needs the ability to orchestrate its operations across its supply chain, asset lifecycle, and production/maintenance. All of this is dependent on data and IT/OT connectivity.

At the same time, according to a recent study from OT security company Claroty, the COVID-19 pandemic has forced IT to be more agile and responsive, and has accelerated the convergence of IT and OT networks. The study reports that 65% of U.S. respondents say their IT and OT networks have become more interconnected since the pandemic began, and 73% expect them to become even more interconnected as a result of it. That said, as Claroty also points out, convergence can also open the door to security threats.

2. Cybersecurity

From taking down critical infrastructure and services to threatening the environment and public safety, a cyberattack on a connected operational environment could be catastrophic. And industrial cyberthreats are on the rise. Claroty's survey found that a majority of U.S. industrial enterprises (53%) have seen an increase in cybersecurity threats since the start of the pandemic.

This is on top of one of the worst years for industrial cybersecurity; according to research by Risk Based Security, reported breaches last year increased by 33% over 2018, with a total of 7.9 billion exposed records. At the same time, according to Deloitte, 90% of OT sector companies have reported at least one security compromise to their infrastructure in the previous two years resulting in the loss of confidential information or disruption to operations.

3. Safety

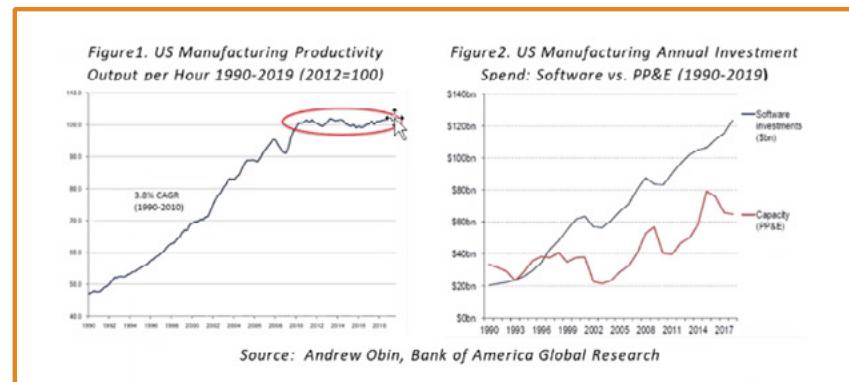
As any OT professional knows, safety and security are like, but not equivalent terms. Safety is about protecting people; security is about protecting data. But as digital transformation intertwines IT and OT, these concerns become more interrelated. The more connected these disciplines become, the more your interests and those of IT intersect. An attack like Stuxnet poses threats to both IT infrastructure as well as operational equipment that can result in physical damage to assets or physical harm to people. OT and IT simply must collaborate more closely in order to assure the wellbeing of an organization's property and people.



4. Productivity

Productivity is another area of common ground. Through automation, simplified data access, and productivity-spurring applications, IT helps drive employee performance. On the other hand, tech-enabled productivity is a newer and urgent imperative for operations. Whether through Lean, Six Sigma or any other type of continuous improvement approach, many industrial organizations have already maximized productivity and performance levers they can harness from their operations. Digital technology needs to be the next lever for automated performance gains – and OT/IT data convergence is required to make it possible for data to be analyzed versus simply wrangled from operational assets.

Consider this: although manufacturing software investment is now more than double what companies spend on their property, plant and equipment, U.S. manufacturing productivity has plateaued over the past ten years, a trend experienced worldwide.



In order for OT to achieve higher levels of productivity and performance, it needs to empower people with the right information at the right time to gain critical insights and make better decisions. Concurrently, as labor shortages, skills gaps and a retiring generation of plant professionals continue to plague OT, they need technologies that will be intuitive to use and automate tasks in order to achieve more with less.

5. Cost

While cost levers have been exhausted at many companies, the need to keep assets running and producing at ever lower marginal cost has not. OT needs to continue innovating to reduce O&M spend while maintaining or improving asset availability and uptime. IT strives for the same as it relates to gaining cost efficiencies across the enterprise.

6. Executive Expectations

C-suites and boards increasingly expect IT and OT to be able to “tie the algorithms to the income statement and the balance sheet.” With OT/IT integration, IT will be much better positioned to not only deliver on digital transformation initiatives but also to more effectively report on materials and machinery costs, empower OT and other teams to be proactive, and drive effective business intelligence enterprise wide. What’s more, the C-suite expects IT to deliver solutions to the business that are sustainable and adaptable once put into production.

C-Suite pressure is compounded by the need to ensure organizations maintain or gain a competitive advantage. In its 2020 Hype Cycle for Managing Operational Technology, Gartner cautions that CIOs and technology leaders in sectors such as mining, material processing, manufacturing, power generation and distribution need to prepare now for innovations that are only two to five years from mainstream adoption. Specifically, it recommends that business cases should be prepared and proofs of concept should be in motion; ramping to full-scale production should also be starting within the next 12-18 months. Competitors are innovating; if you aren’t, you’ll be left behind.

If OT and IT recognize the need to converge, why the disconnect?

The divide of IT and OT over the past two decades can be traced back to Y2K and the dawn of connected devices. IT evolved to focus on optimizing costs when compute was expensive. OT applications became siloed for similar reasons. But now, with cloud, scalable compute, and artificial intelligence and machine learning, IT and OT need to bring their data and their missions back together.

As a result of this divergence, there is also confusion and misaligned expectations about who is responsible for IT/OT initiatives going forward. A 2018 survey by analyst firm Futurum Research among 500 people responsible for IT/OT planning, configuration, management and oversight found that IT-focused respondents perceive that leadership is roughly equal between IT and OT, with a minuscule leaning toward OT (33.1%). On the other hand, only 19.5% of OT respondents Strongly Agree that they are the ones driving IT/OT initiatives.

OT and IT: Seeing the World Through Each Other's Eyes

For OT to successfully partner with IT to realize convergence and transformation, it's important to see the world from the other's perspective.

OT

I am accustomed to real-time observation and control of physical events.

I want control over operations to protect my people, my plant, and my assets.

I ensure business continuity by managing uptime for assets.

I work with assets and devices that may be generations or decades old.

I hate disruptions and value availability above all. Production interruptions can mean higher costs, potential inability to deliver product, or other impacts on safety and quality.

I prefer not to give other people access to my systems. My data is typically siloed, and I may not be comfortable relinquishing some control.

I believe IT doesn't know practice engineering and operations.

I know how to support operational teams in a 24/7/365 environment.

IT needs to understand our process, how we actually get work done before implementing new systems.

"I wish IT recognized I am a highly trained engineer, and that my work may not have the cool factor of Silicon Valley tech but it's literally powering our modern world. Also, IT needs to understand that I'm not used to providing other people access to my data and systems, when cybersecurity wasn't an issue."

IT

I am accustomed to transactional data recording and information processing.

I want control over technologies to protect company data and IP.

I ensure business continuity by managing uptime and availability for enterprise data, systems, hardware and software.

I made tech updates and upgrades frequently and routinely.

I care about availability, but my offline apps don't necessarily impact revenue. I often schedule time for routine systems administration.

I am responsible for broad data protection, security and governance. I democratize and exploit data to the company's advantage.

I believe that OT doesn't know IT best practices.

I know how to support the global business vision and core technologies.

I don't want OT re-inventing the wheel, especially on analytics.

"I wish that OT recognized that although I've traditionally played a supporting role to OT, and OT is the company's revenue engine, I am a vital partner and I can be a powerful ally. Also, OT needs to understand the cybersecurity and data privacy pressure I'm under."

Strategies for Getting the Greenlight

Understanding the technological and cultural divides between OT and IT, what steps can OT leaders take to help spur collaboration and convergence? Here are five recommendations for how to put the OT/IT relationship into more meaningful, productive, and mutually beneficial context.

1. Focus on Business Value First

Talk about business impact, then discuss how technology can address your organization's challenges in new ways. Demonstrate how new data technologies – or further leveraging and maximizing existing ones – can deliver impact on the bottom line, from increasing throughput and improving OEE to reducing O&M costs and lowering safety or security risks.

2. Leverage Your Legacy

Like most IT systems, control systems are becoming increasingly complex, and there is a push to deploy and adopt automation that helps to make them easier. That said, unlike IT systems that are upgraded every few years, your OT systems often stay in place for decades. Help IT to understand your adoption cadence and upgrade cycles in order to help future-proof investments in transformation.

At the same time, your conversations should focus on how to integrate the installed base of legacy OT data and systems, representing decades of investment in your plants that can't simply be ripped out and replaced. IT similarly understands the cost and complexity associated with displacing legacy systems.

Collaborate with IT to develop a roadmap for the next five to ten years, upgrading and replacing technologies at a pace that leverages your investments but captures the benefits of new technologies that can ride on your existing data infrastructure. At the same time, work with IT to connect your technologies to their increasingly powerful cloud-based solutions in order to improve business performance, without compromising system availability or creating security vulnerabilities.

3. Think Big, Start Small, Move Fast

Begin by focusing on how to get quick wins alongside IT by solving problems that drive business value. Identify the highest value use cases from a business perspective. Then look at factors like data availability and data quality. This will enable you to think big, start small and move fast – at the same time, proving value quickly, including the value of your OT/IT collaboration.

4. Share Common Ground: Cybersecurity

You share a lot of common ground with IT. Find shared challenges that you know you need to approach together and use them as jump-off points for your initiatives. For example, cybersecurity is one significant issue. IT is mandated with ensuring cybersecurity across your organization and driving adoption of practices and protocols to protect your facilities. And you're acutely aware of the impact a Stuxnet-style attack could have on a power grid, refinery or other environment. Team up to tighten security, and use those measures as entry to addressing your data, people and processes more broadly.

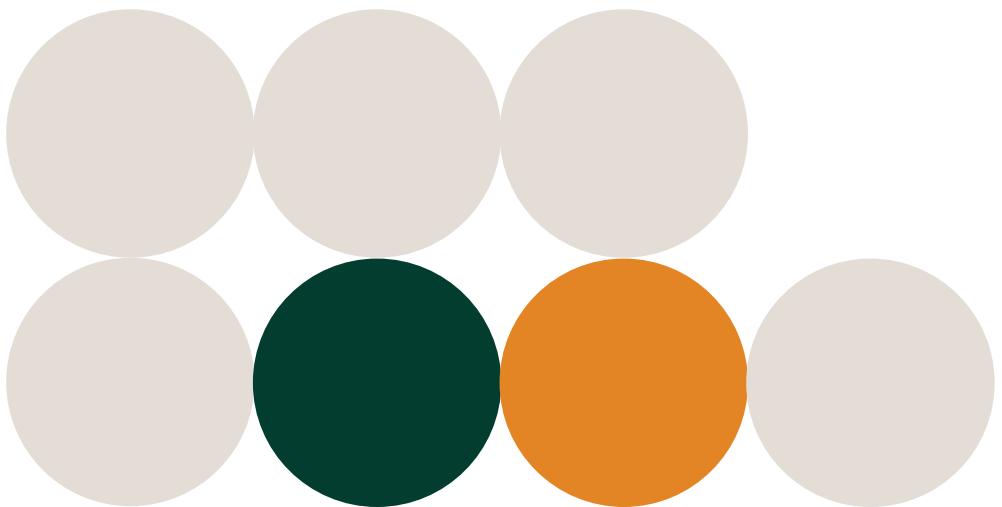
Also stress that many in the field operations and maintenance team may not be degreed and do not understand IT, so solutions need to be easy for the end users to get their jobs done and help maintain security.

5. Embrace New Collaborations

Whether IT brings OT people into its organization, you usher IT experts into yours, or a separate hybrid team is formed, your ability to move with agility and velocity critically depends on your ability to collaborate. As such, remain open and candid with your IT counterparts. Don't leave room for ambiguity or assumptions. Be clear about the tremendous impact of potential outages. Help IT understand how operations technologies work differently. While IT often has visions of automating humans out of the process via artificial intelligence, you know that engineers are still essential to production effectiveness, efficacy and safety.

At the same time, leverage expert third parties where needed to bring fresh, objective perspectives and experience that can help break through bottle necks and bring you and IT together around your common goals.

Too often, historical behaviors and unwritten adversarial interests have kept OT and IT apart. But the fact of the matter is that everyone is on the same team – and the sooner that fact is recognized and embraced, the better. Bringing a “let's prove this together” attitude to the table can be a significant difference maker in convergence. Also, when OT and IT are united on a common solution, it becomes much easier to gain C-suite endorsement and support. Together, you win – and generally win bigger.



A New Solution for OT/IT Convergence and Digital Transformation

Recognizing the imperative for OT/IT alignment, Operations Data Management leader Element has introduced Element Unify™, a cloud software solution that automates the integration, contextualization, and governance of OT/IT metadata. Unify for the first time enables simplified analytics, accelerates time to analytical value and keeps data synced and evergreen across IT/OT systems of record.

Element has been shown to rapidly unlock hundreds of millions of dollars in value for industrial enterprises. With Element, companies typically see up to a **300% faster time to insight, a 25%+ gain in employee productivity by eliminating data wrangling, and a 100% increase of the usability of data in decision making.**

Importantly, Element is not a “rip and replace” solution – it integrates easily with existing IT and OT systems, as well as the AWS and Microsoft Azure IIoT service stacks, solving the data problem through a unique “data fabric/data hub” system of record approach that connects to all data sources, feeds and consumers in a seamless manner. With Unify, industrial organizations can:

Integrate: Easily connect legacy OT and IT systems to modern data architectures, supporting improved analytical workloads in both legacy systems, like the PI System, as well as in cloud-based systems. Data preparation is fast and automated using no-code data pipelines and purpose-built transformations. This makes it easy for IT and OT to collaborate because subject matter experts who know the data can work directly in Unify without the need for an IT resource and without knowing Python. Speeding time to analytical value saves companies millions in data preparation and maintenance costs.

Contextualize: Easily create a unified environment with data transformations purpose-built to handle the complexities of OT data. Enable low code/no code data engineering for rapid integration and contextualization of OT/IT metadata – and support self-service apps and analytics. Connected metadata stored in the Element Graph makes it easy and flexible to build and deploy analytical applications at scale, resulting in hundreds of millions of dollars in value across use cases like OEE, predictive maintenance and safety. With Unify, OT can develop their own analytics without drawing on IT resources in a way that provides IT with governance over a sustainable architecture. It's a best of all worlds scenario.

Govern: Governance of proliferating IT/OT data and analytical silos has never been more important, requiring organizations to manage semantically consistent data and data models across the enterprise. Element Unify’s Data Catalog tracks data lineage (complete chain from source to use), utilizes templates for fine-grained semantics control, and persists data keeping it synchronized across all systems. This builds trust in data, accelerating adoption of analytic apps.

Converging IT/OT, Driving Business Outcomes

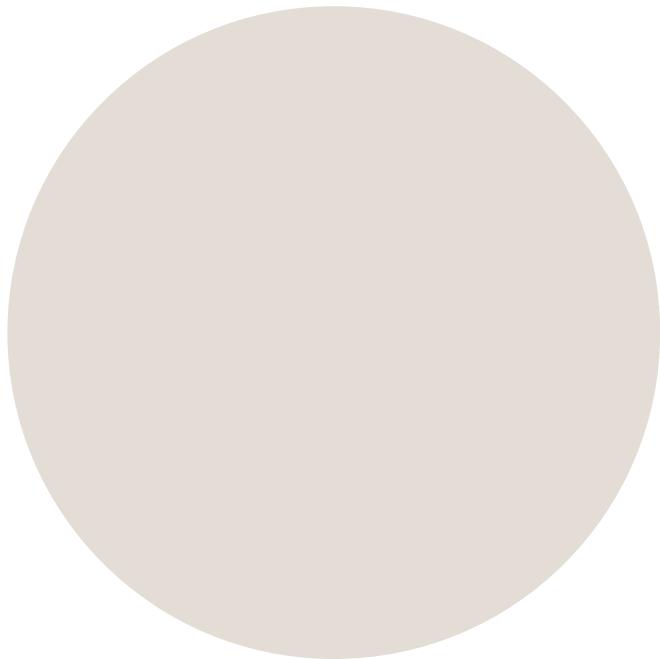
Here are just a few examples of how industrial organizations are benefiting from Element's Unify Operations Data Management solution.

Oil & Gas: A super major's upstream operations with 30+ offshore platforms is reducing effort to contextualize data by more than 90%, enabling 60+ analytics applications and saving \$15.9M annually in the process.

Power Generation: Nova Scotia Power, a fully integrated power utility, was able to realize 2x engineering productivity and lower O&M costs by unifying its time series, Asset Performance Management, engineering and maintenance data into a single contextualized view for plant-, unit- and equipment-level predictive maintenance and reliability use cases.

Chemicals: A leading global specialty chemical company is now able to predict equipment failure and make informed maintenance decisions using Power BI dashboards. Plant managers estimate a potential savings of \$2M over five years, based on the ability to prevent four pump failures per year from just one analytic at one plant.

Food & Beverage: One of the world's largest food and agricultural companies operating more than 1,000 manufacturing plants worldwide is using Element Unify to enable their Factory of the Future initiative. They are creating an operations data fabric that improves production yields and reliability, while reducing maintenance costs, energy spend and operational emissions.



Sources

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3. Gartner, "Hype Cycle for Managing Operational Technology, 2020"
4. Futurum, "Bridging The IoT Perception Gap: Information vs. Operational Technology"
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About Element

Element powers digitally-enabled operations for the Industrial Enterprise. Tackling one of the most critical gaps in Industrial IoT – the fact that 95% of data across the Industrial Enterprise is unusable because it's fragmented and disconnected – Element Unify breaks through the data silos by bringing IT and OT data together for the first time on a single solution. With Element Unify, IT and OT teams can collaboratively make data-driven operational and business decisions around rich, contextualized metadata, while ensuring scale, reliability and security. Industrial Enterprises can see up to a 300% increase in time to insight, reduced organizational fragmentation, and a 100% increase in data usability with Element. Customers include BP, Nova Scotia Power, and Cargill, representing over \$500 billion in revenue, \$300 billion in fixed assets, and 350,000 employees. Element is headquartered in San Francisco, CA. To learn more about Element, please visit elementanalytics.com and follow the company on Facebook, Twitter, and LinkedIn.

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