A Strategic Guide to Digital Transformation in Industrial Manufacturing

Authored By:

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Executive Summary:

Discover what Digital Transformation could mean for your business, with insight on:

- Why Digital Transformation is driving competitiveness across industry

- How Digital Transformation empowers people and uncovers new opportunities throughout enterprise value chains

- The steps and technology to develop and implement a Digital Transformation strategy

Introduction

Changing market conditions and shifting technology landscapes put pressure on industrial businesses. Fluctuating commodity prices and oversupply contribute to capital expenditure challenges. Increased competition and consolidation force businesses to compress construction, engineering and design cycles. Environmental, quality and safety regulations are becoming ever more rigorous. And the workforce is evolving, as a tech-savvy, yet less experienced generation moves into roles once held by industry veterans, who are looking to pass on their knowledge and experience before leaving the workforce. Meanwhile, geopolitical uncertainties make it difficult for businesses to know where to invest. Market norms have been rewritten, affecting profitability in some segments and forging tremendous opportunity in others. In parallel to these societal and economic pressures, Digital Transformation is enabling flexible, agile solutions that companies can implement to overcome and prosper from these challenges.

Digital Transformation is enabling companies to enhance their capabilities, increase their reach and returns across their asset and operations value chains. Pivotal technologies like cloud computing, the industrial Internet of things (IIoT), artificial intelligence, and augmented and virtual reality,

are transforming traditional industrial operations. These innovations represent unprecedented potential growth opportunities for businesses. But they also expose new risk to the modern enterprise like cybersecurity and data privacy. These factors introduce new uncertainty into the industrial business environment.

"Over the past few years, companies that have embraced digital technologies have been rewarded by investors with higher valuations."

The WEF projects the potential value growth that Digital Transformation will create as much as $400 billion in new value for the mining and metals industry, up to $550 billion in new value for the chemicals industry, and $1.3 trillion of new value in the electricity sector.

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World Economic Forum whitepaper
"Digital Transformation of Industries"

Figure 1: A World in Constant Change

Market Environment
- Commodity Prices and Demand Fluctuation
- Competition and Consolidation
- Environment, Quality, Safety Regulations
- Geopolitical Uncertanties
- Generation Shift
- Pace of Change

Customer Imperatives
- Improve Operational Efficiency to Drive Profitability
- Manufacturing Agility for Changes in Consumer Demands
- Safeguard Quality and Assure Regulatory Compliance
- Maximize Asset reliability and Availability
- Workforce Evolution and Capability

Technology Trends
- Cloud
- Industrial IoT
- Business Process Management
- Big Data and Analytics
- Cyber Security

Digital Transformation

How can your business identify where to invest in such a rapidly evolving market place? What new opportunities does Digital Transformation offer your business? How can you manage your enterprise's risk exposure? These questions can be overwhelming at first glance. But as shown by the survey results in figure 1, Digital Transformation is a key imperative for leading industrial business leaders to master.

To be successful, your company needs to improve profitability and return on capital across the asset and operations value chains. In the context of capital asset lifecycle management this includes everything from how an asset is designed and engineered, to how it's operated and maintained for optimum availability and uptime. At the same time, every minute of the operations lifecycle must be optimized to ensure that you stay ahead of the pack. From operations planning to real-time operations management, you need to balance production against the constraints of operational efficiency to your return on asset investment.

400 Industrial Business Leaders Weigh In Saying:

- 92% - Success requires digital at business core

- 88% - Adopting digital will increase revenue

- 90% - Fear being left behind by competitors embracing digital

Figure 2: Survey of Digital Technology in Industry

AVEVA

Unique Customer Experiences.
Not IIoT Hype.

We've all experienced the hype around the Industrial Internet of Things (IIoT). Vendors in almost every industry cite their implementation of augmented and virtual reality (AR/VR), mobility, cloud, and artificial intelligence to disrupt modern industry. But beyond all the hype and buzzwords, a radical change is occurring. That change is focused on delivering unique and exceptional customer experiences, through digital technology. And it's impacting almost every industry today.

The cable television industry has been significantly impacted by new competitors that leverage an almost entirely online distribution model. Encyclopedias and newspapers have been replaced with digital content, distributed through mobile devices and social media. And Netflix and Amazon have replaced the neighborhood video and book store. This change has been driven by digital challengers offering a better customer experience, enabled through transformed business models. To succeed in the digital economy, businesses must embrace and integrate this new technology. Digital Transformation represents both a significant opportunity and a threat to every industrial enterprise.

Backed by the wealth of information the Internet and digital technologies deliver, an unrestrainable shift in how businesses and industries function is occurring. From the plant floor to the C-suite, digital technology is helping to identify and execute on new competitive advantages. From the oil and gas industry to power generation, chemical production, food and beverage and consumer packaging, ongoing Digital Transformation is a key objective of the most successful businesses in the world.

Technology Drives Opportunity

"Shadow" or "secondary" low cost IoT sensing technology can extend the life of existing manufacturing equipment – and at the same time improve operations through new applications like predictive analytics. Low cost sensing coupled with cloud-deployed software solutions unlock new markets and applications previously untapped due to the cost and complexity associated with traditional IT and automation approaches: semi-automated and manual plants can now be automated and managed with low cost devices that connect directly to the cloud.

To address the challenges and opportunities ahead, find innovative ways to fuse digital technology with your existing people, processes and assets to ultimately drive new insights that:

- Enable continual process improvement

- Help your teams to manage rapid change

- Deliver outstanding and differentiated customer experiences

- Empower the workforce while creating an environment that attracts and develops top talent

New Data, New Insights

Digital technology can help you to design, manufacture, deliver, support and maintain products faster, more efficiently, and at lower costs. By bringing together previously inaccessible data streams, enhancing live visibility and analysis of your operations, and driving actionable insights based on better information, you can improve enterprise performance by:

- Reducing unscheduled downtime

- Improving regulatory compliance and safety

- Integrating supply chain logistics with customer operations

- Optimizing maintenance strategies

- Enhancing situational awareness throughout the enterprise

- Reducing waste

- Increasing overall equipment effectiveness (OEE)

Key to achieving these benefits is creating a seamless and continual stream of process and production data that is integrated with historic operations information and then contextualized into new insights on your overall enterprise. Data may already exist within the enterprise stored in historian software or 3D models of plants and assets. But new digital tools can tap into these existing data stores and synthesise them with operational data. This process generates improved insights on how to value creation across asset and operations lifecycles. Digital Transformation empowers your people to take insightful and information-driven action to identify and solve problems at their source, before they compound into critical failure points that cascade into further problems.

Data as an Asset
As part of its SmartGen program to avoid catastrophic failures at power plants, Duke Energy implemented predictive asset analytics from AVEVA. The software leverages high fidelity data from over 30,000 sensors to develop over 10,000 models to catch asset failures long before they occur. A total of 385 finds during three years has conservatively avoided over $45 million in repair costs.

For this amalgamation of knowledge to occur, digital tools and processes need to tap into both operations technology and information technology. In this way, the best technology can establish a bridge between the physical world where value creation takes place through production and delivery, and the digital world where enterprise planning and forecasting occur. Digital Transformation is the process of building a digital value chain that drives closed-loop operational excellence and unique customer experiences throughout the enterprise.

The Digital Transformation Journey

Digital Transformation merges the latest innovative tools and processes with your in-house domain expertise. This enables not only the contextualization of new and existing data but also delivers actionable insights and information. The enterprise can then execute upon these new insights and close the loop towards continual process improvement. This takes time and often involves adopting many diverse technologies and processes to continually build momentum towards sustained operational excellence. For this to occur, every Digital Transformation journey needs to begin with the critical understanding that information and data have become a priceless and strategic asset to the enterprise.

The faster your team can collect, visualize and analyze data, the faster it is empowered to take insightful action that will benefit your operations and your customers. The overall tactical objective in achieving Digital Transformation is to create a real-time operational control loop that accurately and efficiently manages your enterprise, based on information and analytics:

Real-time operational information is used to understand what is happening in real-time and enables the condition management of asset and operations lifecycles. For example, a dashboard displaying vibration frequency of a rotating asset such as a turbine during operation provides real-time understanding of the assets operational behavior and state.

Historical operational information helps you to understand what has happened in the past to create intelligence around operational behavior of assets. Through operational trends, display of KPIs and dashboards, you can create abstracted views of operational states. For example, a graph may be displayed on a dashboard showing the turbine's past vibration frequency during operation.

New Insights Drive New Action
One of the world's largest industrial gas manufacturers has closed its data loop with predictive asset analytics from AVEVA. Prior to a scheduled maintenance outage, the plant identified a vibration sensor anomaly allowing technicians to investigate a turbo engine compressor further and found a cracked impeller. This early catch prevented reactive maintenance and unplanned downtime for a total savings of $500,000.

This can be compared to the real-time vibration frequency, creating intelligence on the asset's long-term operational trends.

Predictive analytics is used for what-if type modeling. Integrating up real-time and historical data enables your team to assess potential outcomes of operational states and behaviors, even accounting for tertiary variables. Deterministic or non-deterministic models can then be applied for open-loop simulation and predictive analytics. For example, given the turbine's current maintenance state, you can now estimate how long it can run before it fails.

Prescriptive analytics describes what's needed to optimize asset and operations lifecycles. Scenario-based guidance is created and delivered through learning elements and closed-loop algorithms to enable your team to calibrate planning and scheduling across the entire enterprise value chain. For example, using a unified supply chain model, scenario-based calculations can be used to optimize maintenance schedules and performance, minimizing impact to your operations.

But to be effective, data and information must be captured and turned into actionable insight through **3 key processes:**

Strategize: First, define key performance and scorecard indicators for the business. Then leverage digital technology to connect people, processes and assets in real time creating a complete digital value loop that collects and contextualizes enterprise data.

Analyze: Convert raw data into actionable insight, using machine learning and advanced pattern recognition to drive predictive insights on process and operations optimization so that your team can identify value 'leaks' and expose new market opportunities.

Maintain: Implement digital toolsets that reduce unscheduled downtime, optimize asset management and maintenance, increase overall equipment effectiveness and drive unique and better customer experiences.

The three steps above are helping leading companies to create so-called Digital Twins of enterprise operations and asset lifecycles. Using digital twins of operations processes, assets and even entire industrial plants, is helping leading companies to model and optimize individual asset performance and even full-scale plant operations.
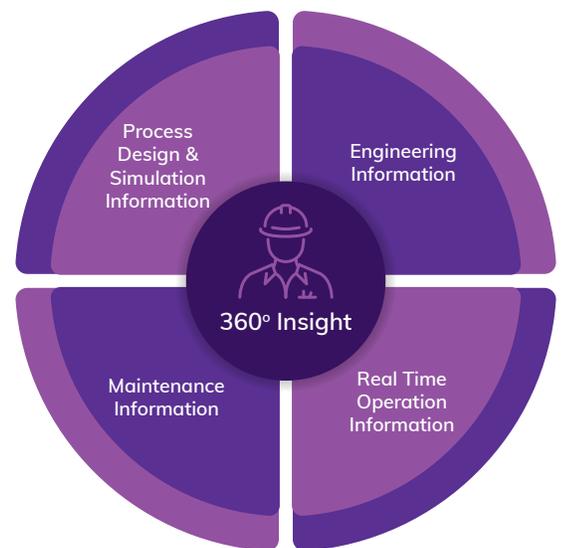
Lifecycle Management through Digital Twins

A Digital Twin is a representation of the physical object in terms of data and information; like a pump, motor, turbine, even an entire industrial plant or a fleet of plants. Digital Twins enable full lifecycle management of physical assets and processes. This starts with unified engineering, where process design, modeling and simulation are combined with overall plant design to create an integrated engineering environment and collaboration workflow.

Physical Asset   Digital Twin

Process Design & Simulation Information

Engineering Information

360° Insight

Maintenance Information

Real Time Operation Information

Unified Engineering facilitates the use of common engineering tools and streamlines the handover and revision process. Each plant can draw upon its own digital data "lake" supported by a common artifact repository that spans integrated process design. These resources streamline engineering effort, and make it easier for global teams to collaborate, thereby lowering the total cost of engineering. During the design phase, digital models allow your teams to analyze processes, equipment and operations through multiple simulations to define the optimum approach for safety, reliability and profitability. At the concept phase, your teams can analyze asset and process design alternatives swiftly, with continuous iteration through variable specifications. This allows your team to create integrated asset models of interacting but separate systems. Each iteration provides a more complete dataset, which in turn feeds into agile software development.

As assets are deployed and plants commissioned, the Digital Twin is continually updated with ongoing operational and process data such as maintenance and performance records and IIoT sensor information. During operational stages, variations from optimal process and asset design are captured during run-time, and the Digital Twin is automatically updated with this information. Knowing the current state of an asset, the digital model can use predictive learning technology to proactively identify potential asset failures before they occur and even suggest ways to prevent those failures. In other words, the Digital Twin can predict when its physical counterpart will break, well before that happens.

The Digital Twin also uses artificial intelligence with advanced process control, control strategy design and process optimization. These tools incorporate necessary variations from process and asset design into the engineering asset or plant data, enabling a complete and efficient digital value loop and unified lifecycle management.

As you scale-up to a Digital Twin of the enterprise operating model, inefficiencies and opportunities in your ongoing operations can be identified and executed upon in real time.

What Experts Are Saying

"The digital revolution is creating a wealth of new opportunities for enterprises across the process plant industries. Older plants are turning to digital technologies to gain a more accurate understanding of operations, while new-build plants need intelligent systems to manage and leverage unprecedented amounts of data. New technologies will play a critical role as organizations pursue their strategic goals in areas ranging from process optimization and intelligent information management to maintenance and modification planning. That much is clear."

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Greg Verdino
Digital Analyst

Bringing together feedstock data management, planning, scheduling and envelope optimization activities, unified supply chain management provides increased granularity on your enterprise operations. The impact of uncertainties and data changes can be viewed, analyzed and understood in real-time, to generate realistic operations plans supported by feasible production schedules. Simulation of plant-wide activities helps your team to make informed decisions about everything from asset to enterprise level operations in real-time.

Assets designed and shipped today typically have digital communication and connectivity built-in. This means they can easily share the data they generate with other systems. For assets and facilities built and deployed before widespread digital connectivity, digital tools like smartphones, tablets, and sensor technology, can help to realize the benefits of Digital Twin technology quickly and affordably, while offering substantial improvement in workflow efficiency. With today's tech-savvy workforce, it is quicker to train your operators. And new tools such as augmented and virtual reality technology further accelerate this process.

Digital Planning and Operations

With Digital Transformation directly impacting the enterprise value chain, business units that were historically in silos are beginning to connect in real-time, accelerating towards a unified supply chain model. Planning and operations are fused together resulting in a 360-degree view of the digital value chain for you to visualize, analyze and optimize all aspects of the enterprise.

Feedstock and raw materials data can be analyzed, live, against planning, operations, scheduling and distribution. Full plant models can be managed simultaneously within a supply and distribution network. Fast optimization, combined with user-configurable visualizations and reporting, allows the impact of uncertainties and data changes to be evaluated and understood in real-time. Reconciliation and historical trend analysis shows you how and why deviations from plans occurred, enabling increased planning efficiency and making it easier to generate feasible, robust schedules that shrink the gap between planned and actual operations.

The amount and accuracy of production information increases substantially, equipping users with tools and insights to go beyond basic data, OEE and lean manufacturing principles to discover the real metrics that are driving performance, availability and quality throughout all levels of supply chain management, planning and operations. Metrics generated by newly-tapped digital data sources enable your team to gain immediate insight into economic decisions across a range of scenarios. Direct integration of operational data and reconciliation environments enables rapid and continual updating of production schedules.

Unified Supply Chain Management
BP implements industrial process engineering software from AVEVA. The software provides advanced modeling to optimize supply chain management from source materials and feedstock to planning, scheduling, operations and distribution. Information is easily shared between users and business functions, improving understanding and collaboration between traders, planners and analysts and delivering a complete visualization of the digital enterprise value chain.

Powerful modeling and analytical tools help your team to pinpoint bottlenecks, and understand how to design more efficient operational workflows. Digital model-driven deployment allows flexible rollout across multiple sites and reduces total cost of ownership (TCO). A consistent and holistic view of the business at each site with KPIs and key scorecard indicators can also be shared across all functions of the enterprise.

As comprehensive operations efficiency models are deployed, your team can instantly see which equipment, processes, groups or sites are underperforming. This provides part of the foundation for developing an asset performance management strategy.
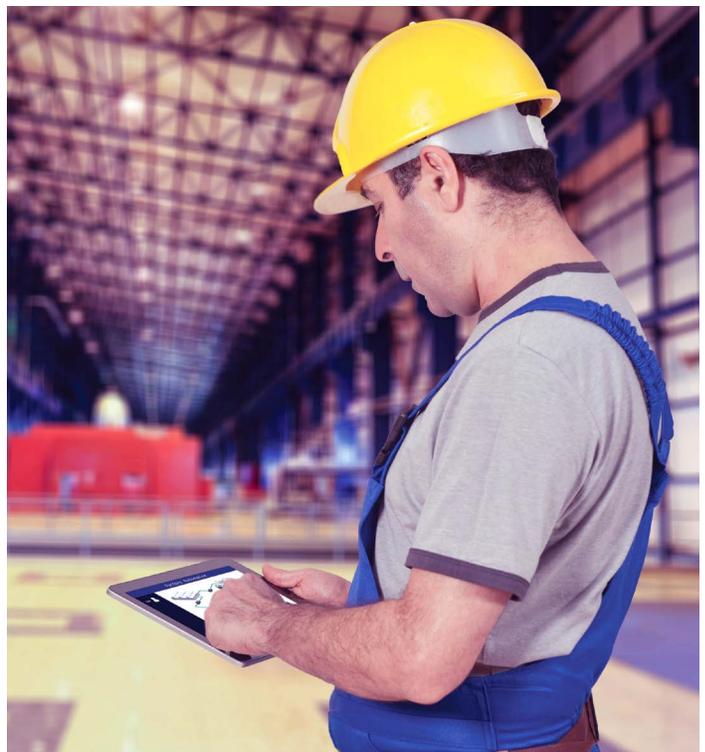
Digital Asset
Performance Management

Creating Digital Twins of assets allows users to optimize performance, reliability and maintenance. Low-cost sensing technology has enabled increased fidelity of your assets operational behavior. Sensor networks become another data source, contributing to the Digital Twin. This is particularly important for legacy assets that were not 'born digital'. As digital tools such as predictive analytics and machine learning software begin to peer into the physical world through sensor networks and other data sources, a variety of cloud, on-premise and hybrid tools are available to predict equipment failures before they occur. Moreover, maintenance can be scheduled around optimum economic and production conditions.

A complete digital Asset Performance Management (APM) solution combines enterprise data capture with asset management, advanced workflow, mobility, predictive analytics and risk-based management. Work orders are automatically generated to relieve maintenance issues. Analytic capabilities continue to evolve from predictive to prescriptive– from what will happen to what should be done. This integration with advanced workflow facilitates continuous process improvement while ensuring assets are not overly maintained, and MRO inventory costs are reduced.

A study of common failure patterns by ARC Advisory Group found that 82 percent of failure types are random. Only 18 percent are predictable and can be prevented using traditional maintenance methods. Machine learning helps identify inefficiencies and abnormalities in equipment operation long before regular inspection. Engineers can reference operational models and digital twins for recent abnormalities in design versus operational performance. This capability becomes increasingly powerful when combined with advanced visualization and control technologies such as web based HMIs, SCADA, augmented and virtual reality.

Catch Asset Failures Before They Occur
In a large regulated and non-regulated utility with over 60+ plants in six states, including coal, simple cycle combustion turbines, combined cycle and integrated gasification plants, AVEVA helps monitor and optimize the maintenance of critical power generation assets with Predictive Asset Analytics software. A single early warning of a crack in a turbine rotor saved the utility over $7.5 Million.

Digital Monitoring and Control

As new intelligence is driven into industrial process control and manufacturing, the control of assets shifts from the logic run on traditional local programmable logic controllers, HMIs and historians, to a more efficient production strategy driven by intelligence found in cloud based applications. New data, from real-time operations and IoT sensors, feed cloud-based applications to create insight into how process and production efficiency can be improved. Using digital control strategies, these new efficiencies are driven back into operations in real-time.

While data has become a priceless asset to the enterprise, the ability to make sense of data and use it to drive new insight can unlock the greatest value. The specifications of HMI and SCADA solutions vary widely – from simple and straightforward to complex and demanding. Similarly, user requirements vary based on the scale and size of the underlying production or operations processes. New tools can help deliver user experiences with real time contextualized, visualized operations and improved situational awareness. These capabilities offer enhanced benefits over traditional HMI and SCADA solutions including:

- **A Unified Interface:** Universal context of real-time processes, alarms, events and historical data across disparate business systems and units through a unified data model with cross-platform support for different client interfaces including mobile, augmented and virtual reality.

- **Digital twins:** Design and operational performance are quickly compared for operational anomalies, with control tag data overlaid on physical assets through Extended Reality - XR (AR, VR, MR) technology.

- **Safety:** Mobile, augmented and virtual reality technology provide real time, easy-to-follow, visual, step-by-step operating procedures and key messages to operations personnel, reducing human error and guiding operators to appropriate equipment for performing specific tasks. Operators are also supplied with information about the location of existing hazards by superimposing them over the operator's location.

- **Accelerated Training:** Operator training is accelerated by allowing operators to perform new tasks and maintain products using the technology's visual instructions. This enables compliance standardization across processes, functional teams and sites.

- **Modeling and configuration:** 3D CAD/CAM drawings of asset and components are virtually displayed for operators to reference during design, maintenance and operations tasks.

- **Knowledge Capture:** Information management technology enables real time data capture and transmission to a central repository for additional analysis and sharing between business units and digital assets.

- **Decreased Capital Expenditures:** cloud technology and Software-as-a-Service (Saas) approaches lower capital expenditure costs and provide flexible software licensing models.

Through scalable and cloud-based industrial SCADA, HMI and information management platforms, new and existing operational and IT systems can be integrated into a unified digital platform that delivers value across all functions of your enterprise.

The Digitally Empowered Workforce

Digital technology is changing how you can train and operate your people throughout the asset and operations lifecycles. New tools are also improving knowledge transfer and increasing situational awareness throughout your global team. Extended Reality - XR (AR, VR, MR) technology is quickly gaining traction in industrial applications. Operators can now learn how to safely and effectively operate a plant or facility or perform maintenance on an asset through immersive virtual reality experiences. Another important trend is the move towards mobile technology in industrial applications. When these technologies are coupled with Digital Twin approaches, operators and plant personnel can visualize processes and assets in real-time, live from the floor of the plant. This step change in operational processes can accelerate new insights on enterprise operations and improve knowledge transfer between new and experienced operators.

Operator Training Simulators (OTS), powered by advanced augmented and virtual reality technology, bring Digital Twins of assets, control rooms, and even entire plants to life in a safe and controlled learning environment. Immersive technology such as head-mounted virtual reality displays and 3D projection allow your teams to experience training in a simulated, identical control room or plant. This provides a realistic virtual learning environment, which prepares your teams to act appropriately in any given situation. Knowledge transfer of best practices and standard operating procedures happens more naturally between new and experienced operators too, which can help to reduce costly maintenance errors.

As operators leave the classroom and enter their day-to-day working environment, augmented reality empowers them with new streams of information and insight on enterprise operations. It uses similar technology to that found in virtual reality, but applies it in an operational context allowing operators to perform their tasks more efficiently. For example, remote support can be provided to operators in the form of maps and diagrams that help guide a plant worker to the physical location of an asset or process

failure. Augmented digital procedures also shorten the time required to train new technicians on how to perform standard operating procedures. By leveraging mobile technology where picture and video instruction can be combined with Digital Twins operators can accelerate time to resolution.

Mobile technology can unite teams in virtual settings no matter where they are physically located. Diverse experts can perform their duties from wherever they are, accessing, monitoring and managing the plant or factory live, from handheld devices. Workers are no longer as tied to the physical plant location but instead can carry a Digital Twin of the plant or factory in their pocket at all times. Mobile technology also enables workers to capture data, collecting it from digitally stranded assets deployed before Internet connectivity was common in industrial devices. This, in turn, boosts operational visibility and helps to build situational awareness across global portfolios. In addition, mobile operator rounds digitalize operational processes to ensure best practices are always followed by operators. Digitalizing operational processes and maintenance workflows also enables real time team collaboration during problem resolution. From the mobile operator, tasked with keeping systems running now, to the reliability engineer focused on ensuring systems will run tomorrow, mobile technology is a driving force behind Digital Transformation.

Mobilizing the operator workforce also helps your team to ensure they are following the latest rules and regulations. Stacks of paper maintenance reports, audit logs and repair procedures become digital versions of themselves. Information is stored in a central location and backed up to the cloud. Regulatory audit trails can be automatically generated. New maintenance technicians can be trained more quickly, through maintenance procedures and decision support workflows delivered directly to their mobile devices. Mobility is also a function that millennials, having been born digital themselves, are already accustomed to. This helps accelerate their assimilation into the workforce.

Key Technology Investment Pillars

Choosing the right technology investment requires analysis and can be challenging. You may find it helpful to think in terms of four key technology pillars that can ensure successful Digital Transformation and optimum return-on-investment for your business.

Comprehensive Value Chain

Modern digital platforms need to deliver returns across the comprehensive value chain of your enterprise. Technology Investments must enable the digital integration of engineering, planning and operations, control, visualization, information and asset performance management solutions to create a 360° view, from the shop floor to the top floor.

Open and System Agnostic

Interoperability and cross platform support accelerate a path towards continual process improvement. Rapidly sharing big data and insights across multiple platforms including cloud, mobile, augmented and virtual reality requires system-agnostic technology that augments rather than replaces your existing asset investments. An open, system-agnostic approach to Digital Transformation drives long-term value and lower total cost of ownership (TCO).

Digital Ecosystems

Technology investments should be backed by a multidisciplinary ecosystem of technology partners. Ecosystems should include design, development, delivery, maintenance and support of industry-specific solutions, on a global scale. Your ecosystem partners in this enterprise may include software developers, technical distributors, system integrators, OEM providers and technology partners, all focused on extending value and driving innovation across your business.

Flexible and Agile Implementation

Adapting to unforeseen events becomes automatic when you use flexible technology implementation. True Digital Transformation platforms help your teams to choose the right mix of deployment options including on-premise, cloud and hybrid rollouts. Agility in procurement allows your team to try out several options, through perpetual licensing or subscription-based approaches. Solutions for implementing technology on an as-needed, staged approach help your enterprise reduce upfront costs and decrease time-to-value of modern technology investments, thereby accelerating your progress toward increased profitability.

How to Get Started

Ultimately, your decision to pursue Digital Transformation comes down to one fundamental question: how does Digital Transformation benefit your business? The answer lies beyond investing in new technologies or gathering even more data. Digital Transformation is about innovating the business strategy, improving operations, and uncovering unprecedented new opportunities for both efficiency and productivity.

According to McKinsey & Company, when technologies like intelligent engineering data management, cloud, advanced analytics, and digital twin are pursued as part of an organizational digital strategy, they can play a role in improving operating margins by as much as 20%. Modern digital tools that support data-driven processes across the entire asset and operations lifecycle not only enable new greenfield industrial applications to be delivered more effectively and with full data-centric digital information, but also enable brownfield applications with improved operations and increased efficiency.

Digital Transformation is part of an ongoing journey towards continuous process improvement involving the collaboration of people, processes and assets through technology. It doesn't happen all at once, but instead builds momentum over time as people, processes and assets are digitally fused together to bridge the operations technology and information technology gap. Start small in your strategy and adoption. But start now to maintain or improve your competitive level and market position.

Major investments upfront are not required to begin a Digital Transformation journey. Consulting services can help your team to assess your current asset inventory and business operations and chart your best overall Digital Transformation strategy. While pilot projects of digital technology such as predictive analytics and virtual reality can help the enterprise understand where to make the best technology investments to improve profitability and return on capital.

About the Author

Matt Newton is Senior Technical Marketing Manager for AVEVA's Asset Performance Management portfolio. With over 15 years of experience planning, developing, and implementing diverse batch and process automation applications, he has extensive experience designing and implementing industrial Internet of things and machine-to-machine applications from the network edge to the enterprise cloud. A former systems and applications engineer, he is responsible for global marketing activities supporting AVEVA's asset performance management product portfolio.

Want to speak to a specialist about your Digital Transformation journey? Contact us at https://sw.aveva.com/contact/sales

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