

Project Managing a PI System Implementation

Module 1: Getting started with OSIsoft and the PI System

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- About this course

About this course

Welcome, this module is the first part in a three-part series from the “Project Manager” learning path.

The main objective of this part is to assist you in becoming familiar with the initial steps in the OSIsoft customer journey and exploring the available training and support services. Although the focus of this module isn't on the technical aspects of the PI System, we will provide you with an overview of the basic concepts of the OSIsoft data infrastructure.

This should be enough foundational knowledge for you to successfully proceed with the other modules in this series and enable you to effectively communicate and collaborate with other stakeholders in your business. We hope you enjoy the module and please don't hesitate to get in touch with any comments or feedback.

By the end of this lab you'll...

- Have a better understanding of the object and breadth of OSIsoft's operations.
- Be familiar with how customers obtain value from our products and services.
- Be able to describe how the PI System operates, what are its main components and what is the main suite of OSIsoft products.
- Be aware of the learning, support and community options available.

Audience

This course is designed for people who are just starting their journey with OSIsoft and who would like to learn more about the company, its products and services and how customers are gaining valuable business impacts.

Level: Intermediate

Study time: 2 hours

Prerequisites

- None! This course should be part of your first steps as a PI System user or project manager.

Software Requirements

- There is no software requirement for this course. For the time being, simply watch the introductory video tutorials.
- Microsoft Office or equivalent is required to access the workbook and presentation provided.

Further information

- This is a self-paced course. Any questions or assistance needed about the material can be asked in this [course's space in the OSIsoft PI Square community](#)
- When you complete the examination at the end of the course, you will receive a certificate of completion which can be shared and directly posted on LinkedIn.

- For more information about our Online Courses please visit our [FAQ page](#)

You can audit the full video lecture content **right now** on the [OSIssoft Learning YouTube Channel](#)

- Lesson 1: Introduction to OSIsoft

Learning outcomes

After completing this lesson, you will:

- Have a better understanding of the object and breadth of OSIsoft's operations.
- Be more familiar with OSIsoft's business philosophy and core values.
- Have been introduced to how customers obtain value from our products and services.

Introduction

Welcome to the "Project Manager" learning path. This series of modules will give you the knowledge and insight you need to effectively manage a PI System implementation. I will guide you all the way from OSIsoft introductions, to planning, implementation and adoption.

In this first part in the series, we'll discuss OSIsoft, what we do and how our customers gain business value through our products. As a new customer I'll introduce you to available training and support options and help you take your first steps in your onboarding journey. Later in this module, we'll also take a look at the basic elements and processes of the PI System itself.

OSIsoft overview

OSIsoft creates software that transforms critical operations data from utilities, manufacturers and other industrial customers into rich, real-time insights to help people save money, time and lives. Proven over 35 years at more than 20,000 sites, in more than 140 countries; 95 of our first 100 customers are with us since our founding in 1980. Licensed in 65% of the Fortune 500 industrial companies, the PI System can connect to more than 450 interfaces and collect high-frequency data from multiple formats, helping companies move from reactive to proactive decision making with real-time access and visualization of data.

Providing much more than a historian, LNS research says: *"While the company's data historians remain a powerful tool for industry, the PI System has made significant progress towards being an enterprise data and analytics platform..."* While Navigant research says: *"OSIsoft is the provider of the most widely deployed Internet of Things (IoT) analytics and information management platform, the PI System."* You can read these reports yourself in the links provided.

Organizing more than 50 events (seminars, workshops) and two major conferences worldwide every year, OSIsoft enables you to engage with industry leaders in a vibrant, thriving community. This includes more than 200 partners supporting integrations and services. Rounding all this up is unparalleled customer support in 12 languages, with 28% of OSIsoft staff focused on support, garnering a rating of 4.7 out of 5 for customer satisfaction.

Exercise – Watch OSIsoft onboarding videos

In the next section we'll talk more about what our customers have achieved through adopting the PI System. In the meantime, watch the additional videos in the links provided to learn more about OSIsoft.

OSIsoft: What We Do: https://youtu.be/C5S3ogZ_0oM

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OSIsoft: Are you ready: <https://youtu.be/BkOMIGi2Wtw>

OSIsoft: Our 9 Tenets: <https://youtu.be/fBBryTC5Ang>

Exercise – Locate an OSIsoft office

OSIsoft has offices around the world. Please use the filter in the link provided to locate the office closest to you: <https://tinyurl.com/sereod6>

Learn More

- Reports and Testimonials
 - LNS global: <https://tinyurl.com/th5bcw4>
 - Navigant: <https://tinyurl.com/ua8huql>
 - Customer support testimonials: <https://tinyurl.com/yx522nlo>
- Meet our leadership team and board of directors: <https://tinyurl.com/sf2dbaf>

- Lesson 2: Customer Success

Learning outcomes

After completing this lesson, you will:

- Be more familiar with the process and services provided as part of customer onboarding.
- Have a better understanding of how companies across different industries utilize the PI System.
- Be able to consider how the PI System can affect your own business processes and goals.
- Prepared to conduct your own research on our extensive archive of customer stories.

Introduction to the onboarding program

OSIsoft's customer onboarding service is designed to accelerate the customer's success with their first PI System by introducing available OSIsoft resources to leverage the PI System and drive value across the business.

In this lesson, we will focus on what is entitled to you, as a customer, as part of this service offering. We will discuss:

- the Customer Success Manager (CSM) role in depth,
- what are the goals of the onboarding program,
- what is included as part of the onboarding program

CSM's play a vital role in your post sales journey. We are here to help guide you on your journey of deployment of the PI software and will ensure you are in touch with the appropriate person, team or resource to solve any technical issue you might encounter. You can think of us as more of a bridge for you and will do our best to help mitigate any risks and try and answer any inquiries you might have. We are also the point person for your annual Software Reliance Program (SRP) renewal, so we will be in touch to ensure your SRP is renewed in a timely manner. More on this topic later in the Lesson.

The onboarding program is a service provided at no added cost to you as a customer. The goals of this service are to:

- Provide you with information about all available resources,
- Accelerate the time to value,
- Provide you with PI System best practices based on your industry and help develop an initial adoption roadmap,
- Assist you in overcoming any roadblocks you might experience during your implementation.

Over the period of the Onboarding Program, an OSIsoft Customer Success Manager will present the following, available to you as a customer:

- Online Onboarding Kickoff meeting
- A CSM to help guide you through the onboarding process, and to help answer or facilitate any questions you might have
- 10 free registrations to our Online Courses to distribute among your team members

During the Kickoff meeting the CSM will introduce you and other members of your team to your account team and will confirm service objectives, expectations, and resources available at your disposal. They will also go over hands on practice and navigation through our newly updated customer portal and all the learning options. Your CSM will show you how to sign up for the 10 free registrations to any OSIsoft online trainings using the code provided and will go through other new customer perks.

At the end of the onboarding service, we would like to hear from you on how we can do better via a short survey. As the saying goes – all good things must come to an end. Luckily, your journey with PI is just beginning, and with the help of our onboarding service, you will be on your way to success in no time!

The promo code will be presented by your CSM during the onboarding kickoff meeting.

Software Reliance Program

Software is constantly changing and evolving and there is a regular need to keep up to date with new technology. OSIsoft is committed to ongoing product enhancement and we reinvest a significant percent of our annual revenues back into product development to ensure that our software stays current and in touch with the market's ever-changing needs.

The overwhelming majority of OSIsoft customers worldwide protect their investment in the PI System with the *Software Reliance Program*. This program provides access to the OSIsoft Product Support Engineers as well as the updates and patches for all licensed OSIsoft products. With an annual subscription to the Software Reliance Program, customers maintain and improve their PI Systems within a predictable annual budget.



Software Updates: OSIsoft reduces the time it takes to update your systems and the inherent risk of massive, one-time, updates by providing continual access to the latest versions of your licensed software, 24 hours a day, through self-serve downloads. With ready access to current software, PI System users can install updates at their convenience. To ensure customers are informed of new releases, software updates are announced on our central digital platform - MyOSIsoft Customer Portal. On MyOSIsoft you can:

- download install kits
- search OSIsoft's knowledge base for products and services information
- create a case for our technical support team
- view available quotes and upload your purchase orders

In the next module in this series we will take a deeper look at the features of the MyOSIsoft customer portal.

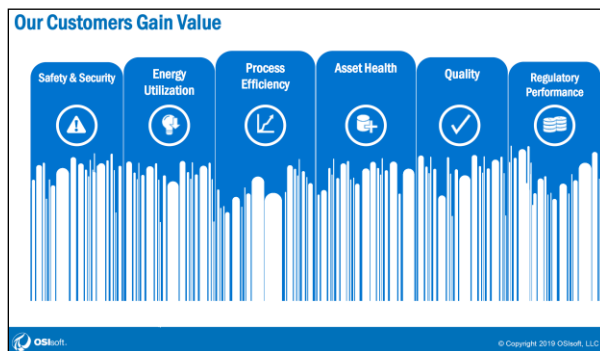
Software Upgrades: OSIsoft believes that no customer should be left behind, so the company continues to support customers who have older versions of PI System software. When they

decide it is time to upgrade, OSIsoft works with them to identify their best migration path from older PI System software to new products.

Technical Support: Unlike most software companies, we do not outsource our technical support services. Only experienced OSIsoft product support engineers provide technical support by telephone, email, and through the internet 24 hours a day, every day of the year. OSIsoft engineers in 16 countries around the world ensure that someone is always available to answer a request for technical support. Right now, we can provide localized support options in more than 10 languages available during relevant hours. The support engineer who initially handles your request for technical support remains your main point of contact until your support case is closed. A senior engineer works directly with you if your request needs additional investigation or special handling. Product developers assist you with the most complicated technical problems. More on Technical Support options later in this module.

Industry examples

When beginning to define your own success metrics it is helpful to be aware of the domains in which the PI System can impact your business: Asset health, Energy utilization, Process efficiency, Regulatory performance, Quality tracking, Safety & security. We will look at these in more detail in Module 2. For now, let's look at a few hand-picked examples of how businesses have utilized OSIsoft products to drive business and operational intelligence.



Power and Utilities

The **New York Power Authority** (NYPA) is the largest state public power operation in the United States. After signing an Enterprise Agreement (EA) with OSIsoft in 2017, NYPA adopted the PI System as an enterprise-wide data infrastructure at the center of its transformation into an end-to-end digital utility, creating a modernized smart grid to make data-driven decisions & optimize performance.

A PI System user since 2000, **Uniper** opted to leverage the solution for everything from understanding vibration data to maintenance strategies for CAPEX planning. With this newfound visibility, the organization used operational data and the PI System to move closer to digital transformation, performing critical turbine repair and reducing CAPEX expenses by 16%.

Sabesp, a Brazilian water and waste management company owned by the state of São Paulo, manages the water distribution and sewage collection and treatment for over half the cities in the state. PI Vision provides intuitive visualization of critical data and notifications alert engineers to

potential problems before they arise. From 2015 to 2017, water shortages decreased from 14% to 5%; customer satisfaction increased from 67% to 84%.



Chemicals and petrochemicals

With help from OSIsoft, a multidisciplinary team of engineers at **Covestro** built a flexible, accessible data hub from the ground up, first standardizing how data is captured and stored, then organizing it within a virtual model of the company's physical assets, and finally using the newly accessible data to build powerful visualization and simulation tools.

For almost 90 years, **Dérivés Résiniques et Terpeniques** (DRT) has manufactured two pine resin extracts: turpentine and rosin; utilized in everything from cosmetics and perfume to rubber tires and food supplements. The PI System is used at four different plants and monitors over 15,000 data streams from DRT's assets. The company has over 400 custom displays that help them optimize asset health and production processes.

Large Industries, a subsidiary of **Air Liquide**, operates hundreds of plants and primarily produces oxygen and hydrogen molecules using air separation units and steam methane reformer units. They use the PI System to optimize operations of their pipeline networks and gas production facilities spread across eight countries in Southeast Asia.



Oil and gas

Headquartered in Rome, **Eni S.p.A.** identifies and extracts oil and gas across 79 countries. Leveraging data to feed simulation models representing real-time oil field conditions, Eni embarked on a journey to optimize asset configuration and maximize oil production across sites.

Plains Midstream Canada, a subsidiary of **Plains All American Pipelines**, provides crude oil storage and transportation in Canada and natural gas liquids (NGL) fractionation, storage, and transportation in both Canada and the U.S. Their data was siloed within diverse operational systems with no data stream context or standardization, until a single, centralized PI System with a unified Asset Framework (AF) structure was used to achieve over \$2 million in savings from increased operational oversight and data accessibility.

For **EQT**, the USA's largest natural gas producer, PI System data structured with Asset Framework (AF) provides insights for midstream and upstream natural gas operations. This allowed cost savings of over \$1.1 million per year — more than double the predicted savings — with over \$2.8 million in savings forecasted for 2020.



Metals mining and materials

Liberty Ostrava (formerly ArcelorMittal Ostrava) is a steel manufacturing company located in the Czech Republic. It is a complete industrial plant, creating and running everything required in the steel manufacturing process. Predictive maintenance resulted in 10% savings in avoided losses and PI System data helped to prove no fault to the insurance company, saving the company over four million euros.

Anglo American Platinum, a leader in refined platinum, produces around 37% of the world's platinum. To keep equipment up and running and maintain ingot quality assurance, the company

collected operations data manually, which required many man-hours to extract from spreadsheets. The PI System gave visibility into their manual process, allowing them to track each step of production. By capturing critical process events, the company saved around 400 hours of additional development time.

RHI Magnesita, a global leader and supplier in the refractory industry, uses a process information management system based on OSIsoft's PI System to optimize its production processes. After a first deployment in a single plant, the system has gradually expanded into a global Industry 4.0 infrastructure with predictive maintenance and manufacturing analytics.



Pharmaceuticals and life sciences

Using OSIsoft's PI System, **Bristol-Myers Squibb** embarked on a journey to digitize the drug development and manufacturing process and create a single source of truth for its manufacturing data. The engineering team used Seeq analytics tools in conjunction with the PI System to identify batch start and end time as well as retrieve data with its format matching the requirement for multivariate data analysis.

For over 170 years, **Pfizer** has worked to bring breakthroughs that change patients' lives through medicines, vaccines, and therapeutics around the world. To reach its goal of doubling the innovation success rate while decreasing time to market Pfizer embarked on a journey, using OSIsoft's PI System, to digitize the drug discovery process; resulting in 50% faster compliance reporting, 90% faster alarm resolution, and 50% reduction in BMS reporting.

PAREXEL International is a global consulting company specializing in pharmaceuticals and medical devices. It has helped pharmaceutical companies get critical drugs into the hands of consumers as quickly, safely, and cost-effectively as possible. To increase the success rates of clinical trials, PAREXEL turned to the combination of wearable devices and the OSIsoft PI System.



Pulp and paper

For 19 years, **Mondi Štětí** has used the PI System to gather real-time intelligence to give people the visibility they need to optimize equipment and processes. Expanding the use of the PI System across the production line increased visibility across the organization, saving 62,000 EUR annually and improving environmental KPIs by 5-7.5%.

Klabin, founded in 1899, is Brazil's largest producer and exporter of paper products and pulp. The company operates 17 plants in Brazil and Argentina and produces 3.5 million tons of pulp per year. OSIsoft's PI System software gave Klabin the power to create a real-time digital model of pulp production, from tree harvesting all the way through drying.

Clearwater Paper is the largest provider of private label tissue to retail grocery chains in the United States and a manufacturer of bleached paperboard. A PI System user for over 20 years, Clearwater Paper relies heavily on system insights, but it was a challenge to manually create targets and KPIs for every PI Tag. With the help of Envoy Development, they were able to put the right metrics in place to understand deviations and take appropriate action to keep production on track.



Facilities and data centers

First established in 1998, **PayPal** has been a subsidiary of eBay for the majority of the last 20 years. When eBay announced plans to separate PayPal the challenge included data being entangled with eBay's PI System; a lack of timely information inhibiting critical business decisions. The solution was to create an independent PI System to use as a data pipeline for new Data Center Infrastructure Management (DCIM) tools.

Dell EMC's Extreme Scale Infrastructure (ESI) division has been developing Modular Data Centers (MDCs) solutions since 2008. But how do you monitor thousands, if not more, data centers across a geographic area? With the help of the PI System, Dell EMC created the MDCi platform to apply data visualization and business intelligence to its data center operations across the globe.

In 2005, **Kellogg's** embarked on a project to reduce its energy footprint while improving their bottom line. By leveraging their previously installed PI System, Kellogg used operational data to reduce energy consumption in its Battle Creek plant.



Food and beverage

Cargill's Global Edible Oil Solutions (GEOS) division fills bottles of olive, vegetable, and other oils for delivery. From raw material management to filling, capping, and then sending the bottles to the warehouse, the multi-step process is complex. Cargill turned to the PI System to analyze and contextualize operational data and take corrective action. The loss in productivity was reduced from 20-40 hours per month to just eight.

Avebe is a niche player that breaks down its product into starches and proteins, which are used as raw materials in food and industrial markets like pulp and paper, adhesives and textiles. The company's management recognized that it was time to embark on a journey of digital transformation and build a Factory 4.0 manufacturing platform to put real-time data analytics tools into the hands of its personnel. The PI System became the heart of the company's digitization strategy and delivered real-time data, analytics, and visualization to the Factory 4.0 solution.

Over the past three years, a PI System deployment at **Kellogg's** manufacturing plant in Valls, Spain, has supported multiple use cases for a plant-wide digital transformation. Data analytics have delivered cost reductions and improved operational standards while enabling a smoother compliance process.



Transportation

Société de Transport de Montréal (STM), manages Montreal's subway and bus system overseeing 4 subway lines with 68 stations, as well as 220 bus lines served by about 1700 buses, along with elevators, escalators and other fixed assets. STM adopted the PI System for its subway system in 2017 as part of the Optimization of Processes and Maintenance Activities (OPALE) project, with the goal to improve maintenance on fixed assets through operational data. Maintenance workers now have access to real-time information to spot asset anomalies, improving customer experience.

Royal IHC manufactures and sells marine engineering equipment like hopper and backhoe dredgers. Its vessels operate in wind-swept remote seascapes far beyond network range, making it hard to maintain oversight of operations and ensure overall equipment effectiveness. Using the PI System, they achieved real-time data visualization and advanced analytics in the cloud, increasing trust in customers by using data to improve vessel efficiency and future equipment design.

For **TraPac**, automating its flagship operations at the Port of Los Angeles terminal enabled the company to cut costs, slash emissions, and move human operators out of harm's way. In 2017, the company implemented OSIsoft's PI System to organize and analyze the information generated by their operations. The result was a 10+% decrease in cycle time, improved maintenance, and faster issue resolution.



Academia, research and government

With the goals of achieving carbon neutrality, net positive energy, and reduced water usage for a multifaceted fermentation process, the **University of California** Davis Sustainable Wine and Food Processing Center deployed the PI System, setting the stage for the next generation of winemakers. Using real-time PI System data to monitor energy, water purification and fermentation they lowered sustainability and energy costs without sacrificing the quality of wine.

RWTH Aachen University, located in Germany, is one of the largest technical universities in Europe. The university's PEM (Production Engineering of E-Mobility Components) institute focuses on designing electric mobility solutions. With the help of the OSIsoft PI System, PEM Aachen used operational data to optimize the production process; predicting battery quality during production in order to eliminate the cost and time associated with end of line testing and reduce overall production cost.

The **NASA Langley Research Center** comprises 130 buildings monitored by a mix of 400 metering devices. With lofty energy reduction goals of 2.5% per year from 2015 until 2025, Langley needed real-time data from the meters to gain the right insights. With the stream of real-time data coming from the PI Server on a live dashboard display using PI ProcessBook and PI Vision, the team can now immediately understand consumption levels and meter data quality.

Have a look at more customer stories here: <https://tinyurl.com/sdotbpbk> or watch the “My PI Stories” video playlist available here: <https://tinyurl.com/rj6bgm9>

Learn More

- To SRP page <https://www.osisoft.com/support/support-services/software-reliance-program/>
- To Onboarding page – **to be designed** together with Marketing, I'll keep you posted with the progress
- Have a look at more customer stories here: <https://tinyurl.com/sdotbpbk> or watch the “My PI Stories” video playlist available here: <https://tinyurl.com/rj6bgm9>

- Lesson 3: OSIsoft's products

Learning outcomes

After completing this lesson, you will:

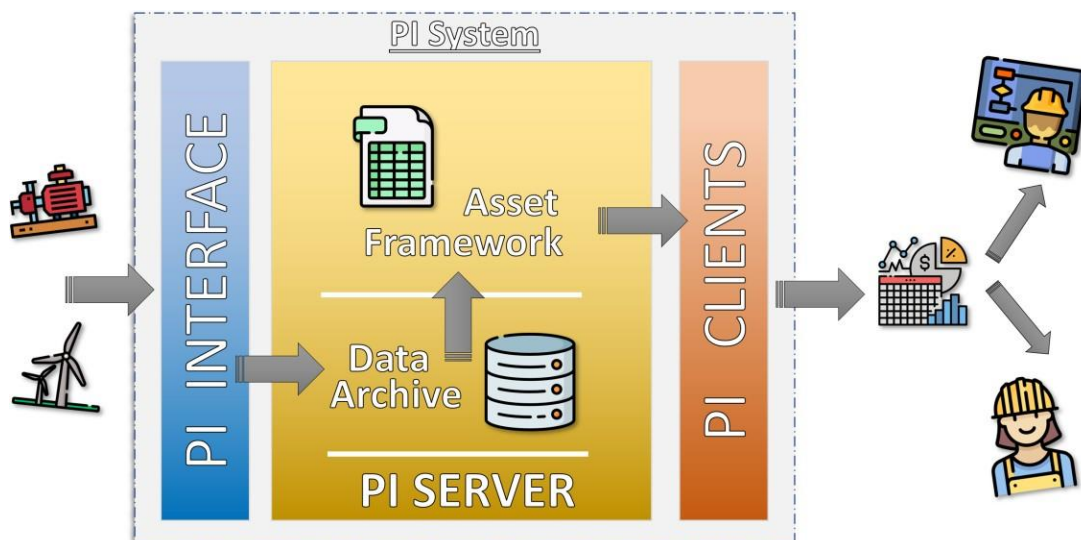
- Have a better understanding of how the PI System operates and what are its main components.
- Be more familiar with the main suite of OSIsoft products.

PI System overview

This section provides a brief introduction to the basic PI System infrastructure. In a later lesson we'll dive into it in a lot more detail; the information presented here should enable you to effectively communicate with OSIsoft and your colleagues and understand certain concepts we will discuss later. Before we even talk about the PI System it's important to understand what we are trying to do. The main idea is that we want to collect data from somewhere, store it, analyze it and then present it to the appropriate audience.

The PI System is the intermediary that facilitates this process of data flowing from a source (for example a pump, a turbine) to a person (for example a plant operator or a maintenance engineer). The PI System is made up of three major software components: the PI Interface, the PI Server and the PI Clients.

The PI Interface translates the data into a format that can be stored in the PI Server, into a component called the Data Archive. But the data in the Data Archive is in a machine-friendly format difficult for humans to understand. Therefore, another component in the PI Server called Asset Framework is used. This allows users to structure the data stored in the Data Archive in a more human-friendly format and add appropriate context. Finally, the PI Clients allow you to visualize and share your data with colleagues, assisting in informed decision making for the business.



So that's a very high - level overview of a basic PI System but stick around for more details in a future lesson. Also, have a look at the video playlist in the next section, to learn more about what the PI System means for different roles in your organization.

PI Connectors and PI Interfaces

PI Connectors simplify the process of adding new data to the PI System by scanning data sources and auto-configuring data streams on the PI Server. There's no need to manually create PI Points during initial setup or in the future. A reference model is built in AF serving as a mirror image of the data source. This is a convenient starting point for integration with a more comprehensive AF model (<https://tinyurl.com/tafl85m>).

PI Interfaces collect data from external data sources, providing real-time, fault-tolerant data to the PI System. Over 450 interfaces are available to our customers. OSIsoft is committed to providing its customers access to their most critical data. Regardless of device, standard, language, frequency, delivery speed or format (<https://tinyurl.com/u4vryop>).

Asset Framework

AF (<https://tinyurl.com/ug5dhfe>) contextualizes, refines, references, and further analyzes data from multiple sources, including one or more PI Data Archives and non-PI sources such as external relational databases. Capabilities include support for templates, notifications and event frames based on trigger conditions.

Experiment with our Asset Based PI Example Kits (<https://tinyurl.com/rkf2b38>). These demonstrate how to model and address simple, industry-specific business problems with PI AF and other asset-based PI tools. Each example kit is a ZIP file that contains the PI AF database definitions and related files. This allows you to install and explore in your own PI AF Server common use cases such as: Downtime tracking, Condition based maintenance and others. Please be aware that although the example kits are available to all customers and partners, they are no longer supported or updated by OSIsoft.

PI ProcessBook & PI Vision

PI ProcessBook (<https://tinyurl.com/gqffkw8>) empowers users to graphically create displays and enrich them with layers of robust, dynamic, data. Once created, displays can be shared and leveraged throughout the enterprise, maximizing collaboration and information.

- Please note that OSIsoft is **retiring PI ProcessBook** using a phased approach over several years. PI ProcessBook was the leading face of PI System for many years, paving the way for self-service visualization. Since then, technology and your expectations around mobility, scalability, and collaboration have evolved beyond what PI ProcessBook can deliver. OSIsoft has been actively developing and investing in PI Vision to provide you that next-generation, modern visualization experience. For additional dates such as when PI ProcessBook will no longer receive security updates and fixes, or when technical support will end, please see [this article](#).

PI Vision can analyze data in multiple ways, seeing your data on any device, wherever you are, whenever you need it. Leveraging Windows Integrated Security, PI Vision is the leading visualization tool to quickly, easily and securely access all your PI System data. (learn more: <https://tinyurl.com/s3yeord>)



PI DataLink and PI Webparts

PI DataLink (<https://tinyurl.com/uebwlv3>) directly integrates your PI Server data with Microsoft® Excel® so you can easily analyze all your operational data using the powerful analytic features of your spreadsheets. Create live, interactive, spreadsheet reports that compare and analyze assets, process areas, and equipment in real-time.

PI WebParts (<https://tinyurl.com/t2rxve7>) lets you create dynamic dashboards in Microsoft® SharePoint® that combine your real-time operations data with financial information, graphics, and other company information. Provide the right information to the right people with configurable views that ensure every employee can access and work with the information relevant to their job.

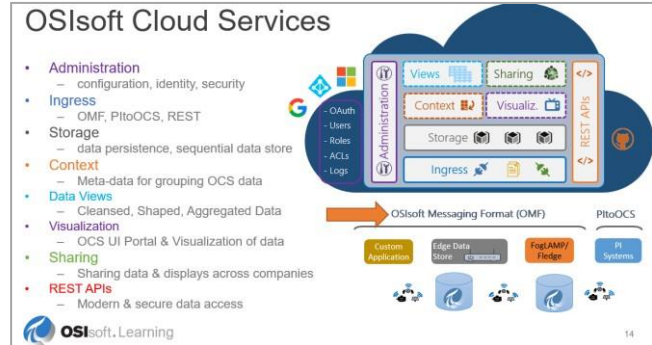
OSIsoft Cloud Services (OCS)

Introduction

Industrial digitalization and globalization are generating more data and new opportunities to leverage data. Data that can be shared and used to power new applications that deliver increased operational efficiency and support new business models. At the same time the cloud offers a scalable, elastic, and centralized environment to aggregate data for reporting, advanced analytics, and third-party applications. OSIsoft's Cloud Services are designed to meet today's digital transformation needs by connecting in real-time data from PI Systems, to people, analytics and applications for enterprises and communities to realize the value of their data.

What is it?

OCS is a cloud-native platform built for historical, real-time and future/forecasted operational data. OCS complements existing on-premise PI systems and enables users to easily define, visualize, query and shape data sets required for data science.



More information

- <https://www.osisoft.com/Solutions/OSIsoft-Cloud-Services/>
- OSIsoft Cloud Services portal: cloud.osisoft.com
 - This your gateway to learning about Cloud Services features. You will find detailed API documentation as well as sample code to help you interact programmatically with your data using the Cloud Services API.
 - In the OCS portal you can:
 - View OSIsoft Cloud Services API documentation
 - Explore working code samples provided in multiple programming languages
 - View the OSIsoft Cloud Services service blog
- [Enabling Enterprise-wide Data Science with OCS Dataviews](#)
 - In this course, you will gain hands-on experience with a new OSIsoft software product, OSIsoft Cloud Services (OCS): analyze & visualize data in OCS, add metadata & create Data Views in OCS, access OCS data in a Jupyter Notebook via Python, filter & prepare data from OCS for machine learning and more.
- OSIsoft Cloud Services ([YouTube playlist](#))
- OCS for Developers ([webinar](#))

Edge Data Store (EDS)

Introduction

EDS augments the PI System and OCS by collecting and storing data in situations where deploying a full system is impractical. It can collect data that is beyond the reach of automation systems, in unreliable network conditions, and in environments too rough for traditional computers. Edge Data Store can run almost anywhere you can install a sensor, such as beam pumps, mining trucks, windmills, etc.

What is it?

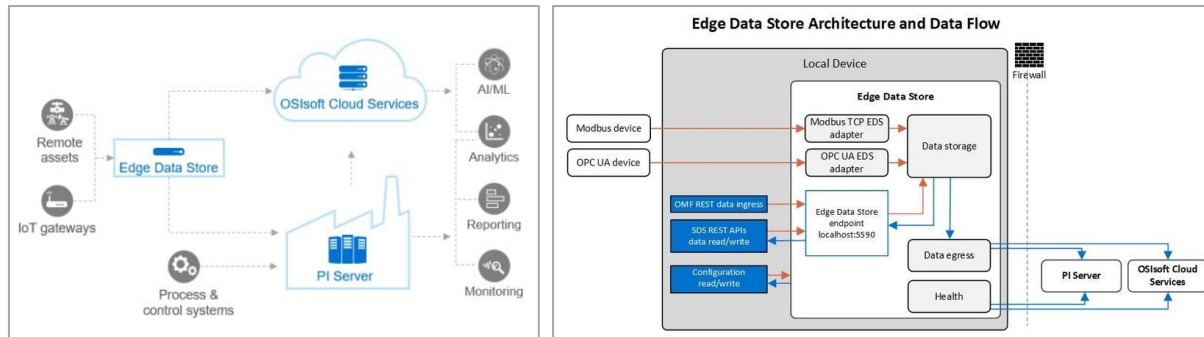
EDS is a lightweight data collection and storage application designed to capture data at the edge of networks for historical storage and analysis. It runs on small, rugged devices or embedded in existing industrial hardware, and is designed to be resilient and require minimal installation and administration.

EDS collects data using any of the following methods:

- Built-in OPC UA connectivity

- Built-in Modbus TCP connectivity
- Custom application using OSIsoft Message Format (OMF)
- Custom application using REST API

Once collected, the data is stored locally in configurable data storage within EDS, until it can be sent to permanent storage in a PI System or in OSIsoft Cloud Services through periodic egress. The data can also be read from local storage by custom applications using REST APIs.



More information

- Link to GitHub page (<https://osisoft.github.io/Edge-Data-Store-Docs/V1/>) which includes: design, performance and security considerations , quick start guides and configuration options.
- Blog post: [Easy as PI: Edge Data Store](#)
- Video: [What is an Edge to Cloud IIoT Solution for Remote Asset Monitoring using Smart Sensors?](#)
 - Listen to Mikhail Koloskov from IPCOS say why they chose EDS for their edge analytics application for Oil & Gas. OSIsoft's Chris Felts describes the history of EDS and how it is related to the PI System.
- Video: [Edge Data Store - Applications delivered at the Edge](#)
 - In this presentation, we will cover what the Edge DS is and how we envision customers will use it at the Edge of networks. We show you how you can create local user applications directly from data stored in Edge DS. Finally, we will show you how to use Edge DS to extend applications from the Edge to the Enterprise or the Cloud.

Learn More

- What is the PI System for (<https://tinyurl.com/s45zbcw>)
- OSIsoft Product List: <https://www.osisoft.com/pi-system/pi-capabilities/product-list/>

- Lesson 4: Overview of Support and Training

Learning outcomes

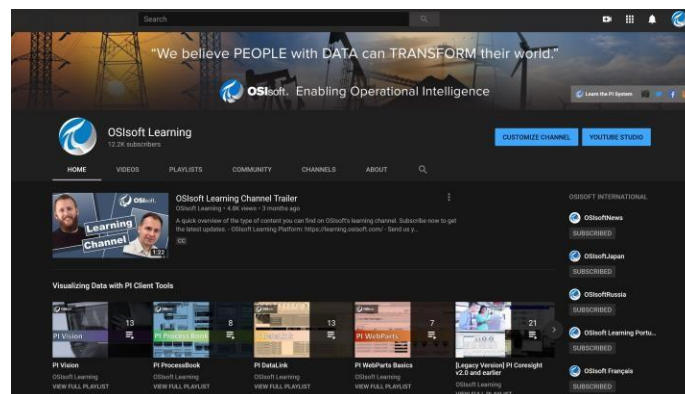
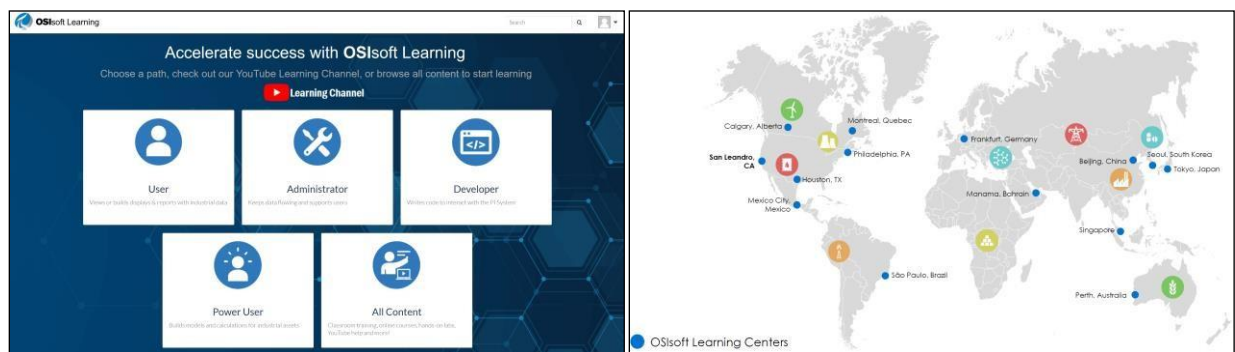
After completing this lesson, you will:

- Have a better understanding of the numerous learning opportunities available at OSIsoft.
- Be aware of the support options available worldwide.
- Know how to engage and contribute to the OSIsoft community.
- Know how to find software solutions from OSIsoft partners.

Overview of learning options

OSIsoft offers a variety of learning options to appropriately suit your needs. Self-paced, online courses through our award-winning learning environment, face to face instructor-led sessions at one of our Learning Centers around the world or even onsite training at your location, working with your own data. Our events, hands-on labs and webinars offer additional opportunities for upskilling your PI System abilities.

Browse our training catalogue at <https://learning.osisoft.com> to sign up for our online or classroom classes, earn and share your certificate, and follow a learning path appropriate for your specific user role. What's more, if you are part of the OSIsoft Enterprise Agreement program you can access all our online classes for free. That is more than 12 online courses with more than 50 hours of content. As a new customer, you receive 10 free registrations to any OSIsoft online course valid for 6 months. For beginners, we suggest the User path.



Online Courses

Take a few minutes to click into the different learning paths and see the types of online courses offered for:

- **Users** – who need to see the data in real time, or build reports with PI System data;
- **Administrators** – who keep the data flowing and support end users. These courses dive into the backend components of the PI System;
- **Developers** – who write code to interact with the PI System programmatically;
- **Power Users** – who are adept with the basics of the PI System and can boost their organization's efforts through building an enhanced Asset Framework structure.

Our online courses cover a wide range of topics and are on-demand. When you sign up for an online course, you will immediately gain access to the course material for 30 days along with a Training Cloud Environment for you to practice the concepts discussed in the course.

You can also purchase a Training Cloud Environment separately from the courses if you want a place to explore the PI System outside of your company's production environment; however, we recommend using your own development system whenever possible to create meaningful results with your company's data as you learn from our online materials.

Classroom Courses

On the same site you can also register for any of our 6 instructor led training sessions, conducted in one of our 14 OSIsoft learning centers around the world. Although training should be relevant to a PI System user's role and responsibilities, for our new customers we generally recommend: i) PI System Administration for IT Professionals, ii) Building PI System Assets and Analytics with PI AF, iii) PI System Architecture, Planning, & Implementation, and iv) Visualizing PI System Data.

To browse the available training centers and courses, follow these steps:

1. Click on "All Content"
2. Use the filter on the left to select "Classroom" under "Content Type"
3. Expand the "Location" category to browse our training centers
4. View the available courses offered at your selected location
 - a. Some training locations offer course taught in languages other than English, feel free to use the "Language" filter to further refine your course options.
5. Click on the course that matches your interest and follow through registration

If you want to view the course calendar, you can click on the calendar icon in the All Content page.



Have a look at the "Sneak Peek" video (<https://youtu.be/qYaLBRW6YqA>) for an insider's look at our learning platform.

Join the more than 13000 subscribers of our OSIsoft Learning channel on **YouTube** and access more than 1000 videos including our range of online courses, individual walkthroughs, troubleshooting and new features videos. For more information. **Have a look** at the channel trailer (<https://youtu.be/ADBWqem5kdE>)

Playlists for various topics are available to help guide you through your training topic of choice from start to finish.

Exercise – Search the OSIsoft Learning Channel

Objectives

- Find a video on the OSIsoft YouTube Learning Channel to learn about a topic not covered in the Visualizing PI System Data Course
- Demo accessibility features and playback settings in YouTube

Problem Description

You want to learn how to navigate a PI Vision display and make use of Ad-Hoc trending functionality.

Approach

Step 1 : Use a web browser to navigate to YouTube.com

Step 2 : Search for the OSIsoft Learning Channel

Step 3 : Run a search to find a video about migrating PI ProcessBook displays to PI Vision, sample search: “PI Vision” or “ad hoc trending” or search for any other topic of interest to you.

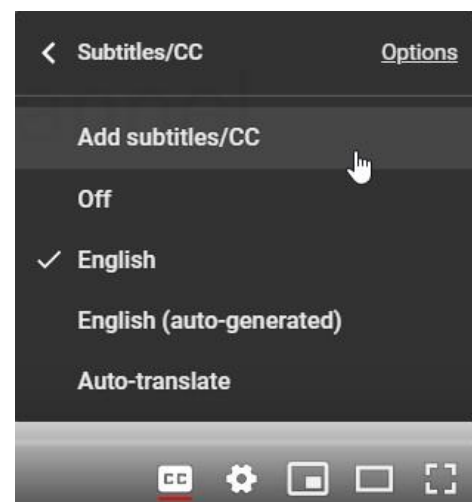
Step 4 : A video covering the utility is “PI ProcessBook to PI Vision Migration Utility”

Step 5 : Turn on the Subtitles by clicking on the  button

Step 6 : Change the quality of the video by clicking on the Settings  icon

Step 7 : While in Settings, choose Subtitles and notice that you can have Google auto-translate to the language of your choice AND you can submit subtitles in other languages for the OSIsoft YouTube team to review

Step 8 : To get notified when OSIsoft releases new videos, make sure to  and click on the bell icon for updates 



Exercise – Find a playlist on YouTube

Objectives

- Search the OSIsoft YouTube Learning Channel for a playlist that interests you
- Use the playlist links to share structured content with your colleagues

Problem Description

You want to learn as much about a product as possible, or you want to audit an online course for free.

Approach

Step 1 : Use a web browser to navigate to YouTube.com

Step 1 : Search for the OSIsoft Learning Channel.

Step 2 : Identify several playlists on the channel's "Home" tab.

Step 3 : Click on the PI Vision Playlist.

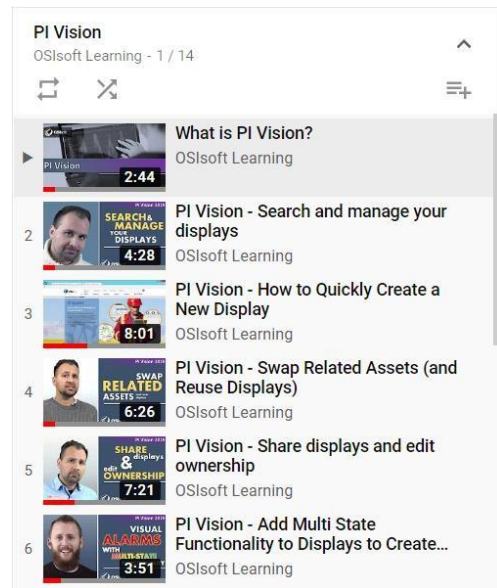
Note the playlist sidebar on the right side of the page. Now you can click into several related videos.

Step 4 : Share the URL for the video with a colleague by selecting the entire URL on your page. If you use the share button on the video, it does **not** share the entire playlist.

Step 5 : Go back to the OSIsoft Learning channel homepage by clicking on the channel icon below the video player.

Step 6 : Scroll down until you see the section titled "Audit our Online Courses" and click on the title.

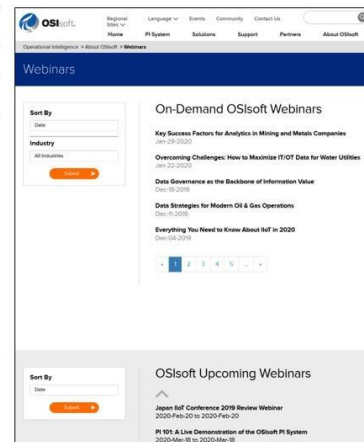
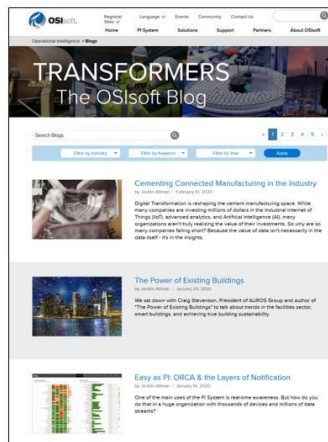
Step 7 : Take note of all the **free** online course videos that you can view and share after PI World with your team!



Follow up: What are 2 ways you can find playlists on the OSIsoft Learning YouTube Channel?

Events, OSIsoft blog and webinars

Explore our events page to find upcoming OSIsoft events in your area or watch recordings of keynotes and presentations from previous events (<https://www.osisoft.com/about-osisoft/events/>)



Regularly visit our blog, to keep up to date on information about our products, customer stories and related topics (<https://www.osisoft.com/blogs/>).

Finally, register to attend one of our upcoming webinars or watch previous webinars on-demand (<https://www.osisoft.com/about-osisoft/webinars>).

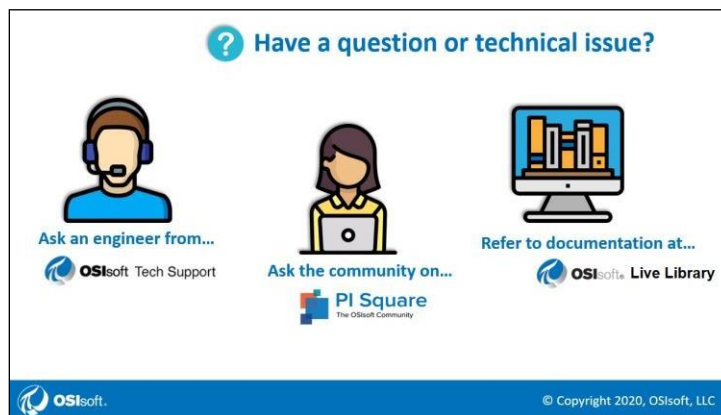
By combining options such as self-directed, instructor led and social learning, OSIssoft makes sure that customers have every opportunity to develop their PI System abilities and increase their awareness of its distinctive features.

Overview of support options

Do you have a question or technical issue? Ask an engineer from Tech Support, submit a question to the community on PI Square or search the online documentation. Technical support is available 24 hours a day, 7 days a week, worldwide, from a dedicated and highly trained team, with 40% of requests resolved in less than one day and 60% of requests resolved in less than a week. You can open a case with OSIssoft Tech Support through the myOSIssoft Customer Portal or phone support through 5 offices worldwide.

When you contact OSIssoft Technical Support, be prepared to provide this information:

- Case number if you're following up on an existing case, reported previously
- Product name, version, and build numbers
- Details about your computer platform (CPU type, operating system, and version number)
- Time stamp of when the difficulty started
- Details of any environment changes prior to the start of the issue
- Summary of the issue, including any relevant log files during the time the issue occurred

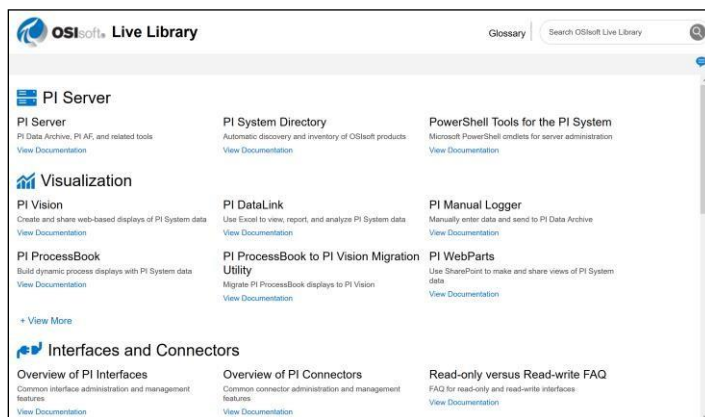


Through the myOSIssoft Customer Portal you can request one of our Field Service engineers to provide onsite or remote installations, upgrades or trainings. Contact your CSM to help you identify the appropriate Services and arrange them. New customers can access installation and training bundles such as:

- Installation and Beginners Training– this includes PI System Installation, On-site visualizing PI System Data training and 4 registrations to public trainings
- Accelerated Training– for 6 registrations to public trainings, 2 on-site trainings, and one-year pass to our Virtual Learning Environment

- Infrastructure Adoption– 4 registrations to public trainings, a PI System Jumpstart Workshop (that's 3 days onsite with OSIsoft experts sharing best practices on architecture and configuration)

The **Live Library** page includes online documentation and the most up to date information on all our tools and products (<https://livelibrary.osisoft.com>).



One of the 9 OSIsoft tenets is “Never leave a customer behind” and with this breadth of support options you can be sure OSIsoft, its partners and the customer community will be right there with you, every step of the way.

Engaging with the community

Engaging with the **PI Square** community (<https://pisquare.osisoft.com>) allows you to learn from the experiences of OSIsoft customers, developers and engineers. You can even build a reputation by answering questions and sharing your own experiences with the PI System.

A subgroup of the PI Square community is the Developers community where you can connect and collaborate with OSIsoft engineers, partners and fellow developers online.



To ask a question or search for an issue type in the “Search PI Square” search box. As you type, you'll see related content pop up. Take a look at these as your question might've already been asked. You can also check the extended search results.

If you don't see any similar questions, go ahead and ask yours by clicking “Search”.

You can use the text area to fill in related information such as version information and message logs. You can add screenshots and other images and also attach supporting documentation by clicking the “Attach” button. Once you are done filling in your description, choose a place and a category to post your question. Finally make sure to add tags; this will make your post easier to find. Once you are done, click “Post”. Now you'll receive notifications on PI Square and by default you'll receive emails when someone responds to your question.

The PI Square community has places you go to collaborate, called *Spaces*. These spaces are generally named for a specific topic or purpose. Each space can contain multiple types of content, including discussions, documents, blog posts, polls, and more. Currently, PI Square has the following four spaces:

- **All Things PI** - A general forum where OSIsoft Technical Support will keep watch to help answer questions and contribute to discussions. Use the product-specific spaces like PI Server or PI Visualization to find relevant content for whatever your needs may be.
- **PI Developers Club** - Here we have tools and support for developers to create applications for the PI System.
- **Learn PI** - Our hub for students to interact and learn from each other while they pursue certificates in our on-demand online courses.
- **PI Square Groups** – Join a group that speaks to your specific industry’s needs and learn from others in your field of their recommended best practices for projects on your horizon.

Exercise – Navigating PI Square

Objectives

- Create a PI Square SSO Account and find answers about Visualization topics
- Discover the online course forums

Approach – Part 1

Step 1 : Using a web browser, navigate to the PI Square website:

<https://pisquare.osisoft.com>

Step 2 : Log in to the PI Square community

- a. If you don’t have an OSIsoft SSO account, create one now. You’ll use the same account for PI Square, the OSIsoft Learning platform, and the Customer Portal.

Step 3 : Search for a post for each of the topics:

- a. Future Data in PI DataLink | URL Parameters in PI Vision

Step 4 : Read through past posts, comment, or ask your own question.

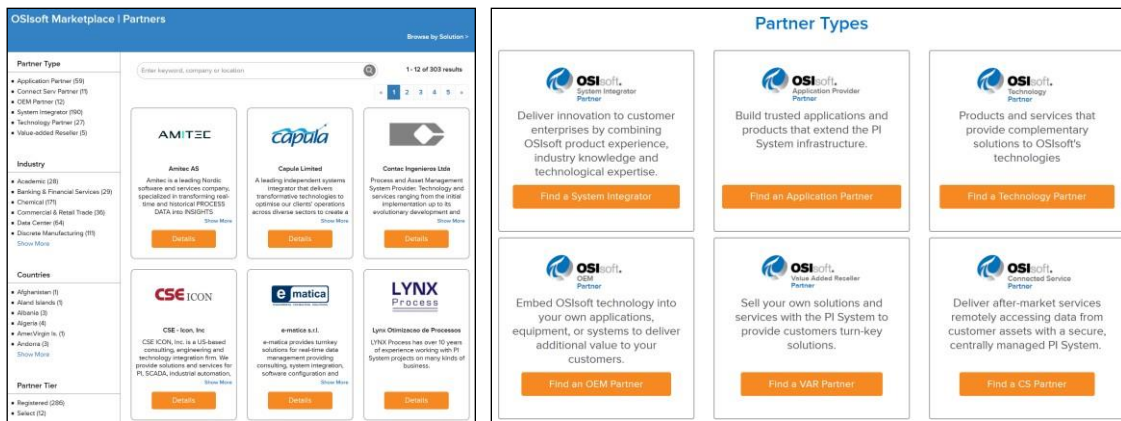
Approach – Part 2

Step 1 : Navigate to the “Learn PI” space either by clicking on Spaces>Learn PI in the page header, or by clicking on “Online Courses” from the homepage.

Step 2 : Click on “Visualizing PI System Data with PI Vision” under the “User” learning path.

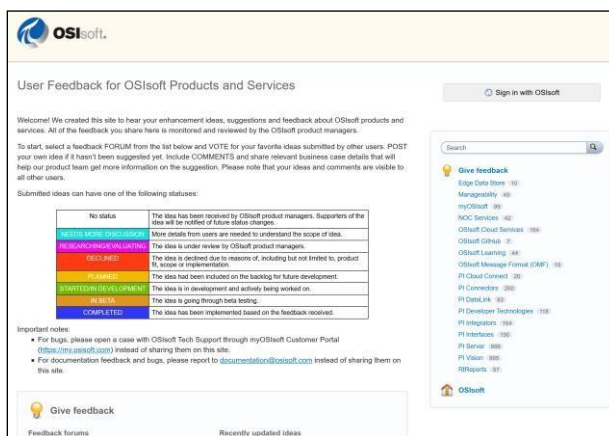
Step 3 : Explore the questions posed and the answers given by the community for our on-demand Online Courses.

You can use the **OSIsoft marketplace** to find software solutions from OSIsoft partners who have expertise in various domains to address your specific needs (<https://www.osisoft.com/marketplace>).



Partners provide expertise, products and solutions to OSIsoft customers. You can read more about the different partner types on the overview page and then search for specific partners. Also, you can browse solutions from our partners, addressing everything from asset management to vibration monitoring and beyond.

While using any of our products or services, you have the opportunity to share your recommendations, suggestions and comments with OSIsoft through the **Feedback page**. Don't hesitate to get in touch, share your ideas or vote on the ideas of others (<https://feedback.osisoft.com>).



Social learning activities allow you to learn from others, share best practices and reflect on your own challenges. So, engage now with our community of experts and fellow PI System users and help everyone develop their skills.

Learn More

- OSIsoft's YouTube Learning channel: <https://www.youtube.com/osisoftlearning>
- OSIsoft's YouTube News channel: <https://www.youtube.com/osisoftnews>

- Feedback page (<https://feedback.osisoft.com>).
- OSIsot community: <https://pisquare.osisoft.com>

Next steps

In this module we explored OSIsot's core business, understanding how customers are achieving success with our extensive suite of products and services. Hopefully, this enabled you to consider how the PI System can affect your own business process and goals. We also assisted you in becoming more familiar with basic PI System concepts such as elements, PI Points and event frames, walking you through the development of a basic display in PI Vision. Finally, we shared with you the extensive learning, engagement and support options available to all OSIsot customers.

In the next module we will look at the PI System architecture in more depth and begin examining the initial phases of project managing a PI System implementation, like defining milestones, identifying stakeholders and evaluating business impact.
