

Toward Smart Factory and Digital Transformation

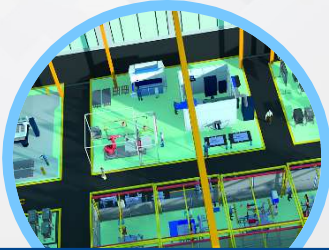
Smart Manufacturing Innovation Center

Digital Transformation Hands-on Skills



“Interoperable Testbed” for Smart manufacturing

POC of Smart Manufacturing Solution



POC of new Solution
on real production scenario

Beyond vendor and domain

Industry Ecosystem



Ágora for
Smart Manufacturing

Membership of various stakeholders

Technician training program



Training smart manufacturing
professionals

From Technology to Business



SMIC Changwon

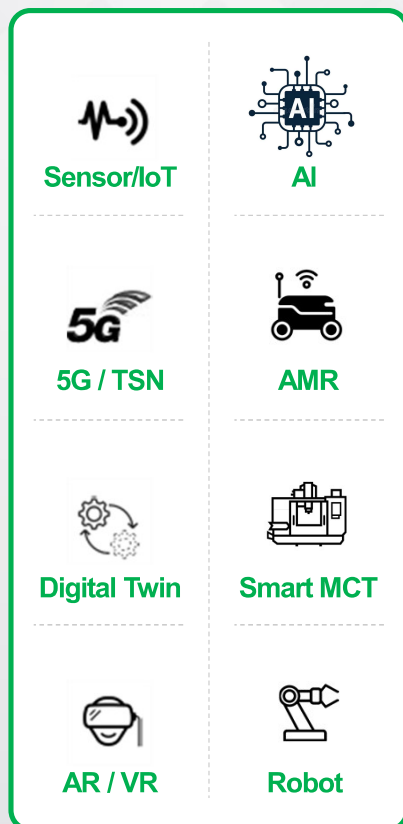


SMIC Ansan

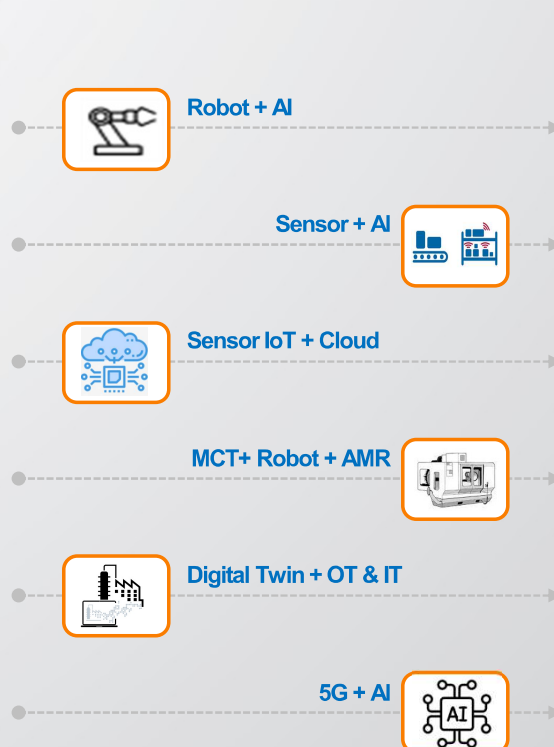
SMIC

Supplier / Consumer

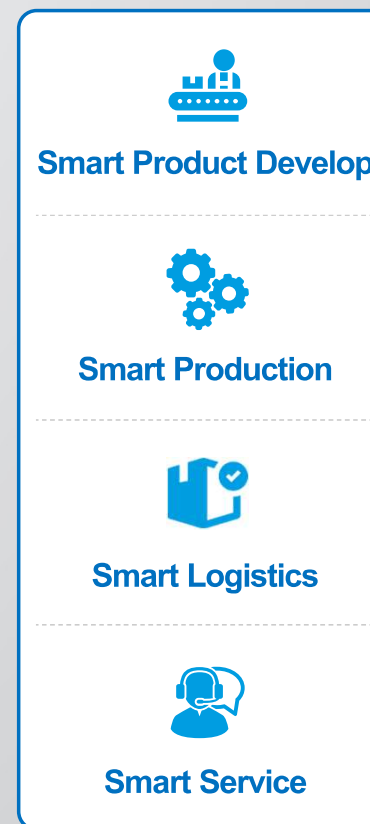
8 Basis Technology

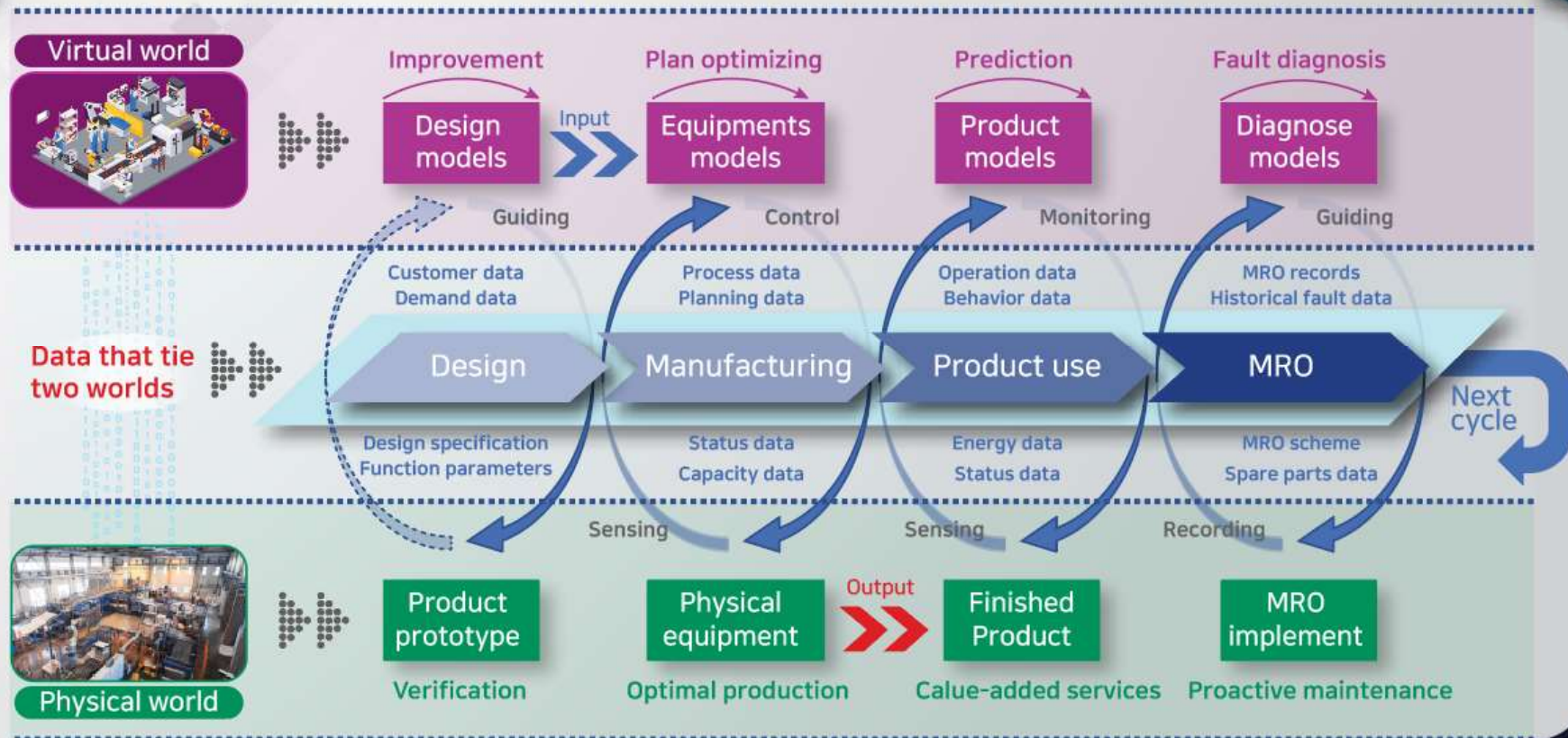


Converged Solution / POC



Spread into the Market







Light house for smart manufacturing

Presenting a direction for sustainable
manufacturing innovation
KETI SMIC



스마트 공정혁신 데모공장 (창원)

Optimized production based Digital Twin in SMIC

CAD
Design

Analysis

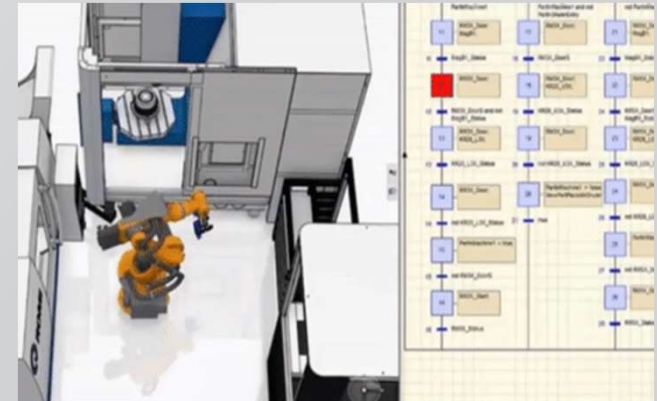
Generate
CAM
Data

Virtual
/Real
Production

Polishing
Treatment

Inspection

Ask
Consulting



Feedback

Consumer

SMIC Membership

LS ELECTRIC

SIEMENS
Ingenuity for life

SK telecom

두산공작기계

HYUNDAI
WIA

HEIDENHAIN

MITSUBISHI
ELECTRIC
Changes for the Better

HYUNDAI
ROBOTICS

KDB산업은행

KPMG

DELL Technologies

Hanwha

FESTO

RITTAL

ePLAN

RENISHAW
apply innovation™

PERFECTION IN AUTOMATION
A MEMBER OF THE ABB GROUP

OMRON

BOSSARD
Proven Productivity

rexroth
A Bosch Company

ptc

Mando

RADIX
RADIX CO., LTD.

WOORINET
(주)우리넷

CREVIS

Studio
YUDD GROUP

S}net

WIZCORE
위즈코어 주식회사

igus

HBL
안보일렉트(주)

IR Ingersoll Rand
Inspiring Progress™

Weidmüller

Stratus

STÄUBLI

VIRNECT

impix

MACHBASE

BS
BAIKSAN SNK

ENGINEERING & DESIGN
Beyond Limits

J-INNOTECH
FOR YOUR BEST PARTNER J-INNOTECH

unomic

Inatech
(주)인아텍

GAON

miliwave

삼원ACT(주)

Sangwha

WIMIR
위미르(주)

(주)영일 메카텍
Youngil Mecatec

AUTODESK

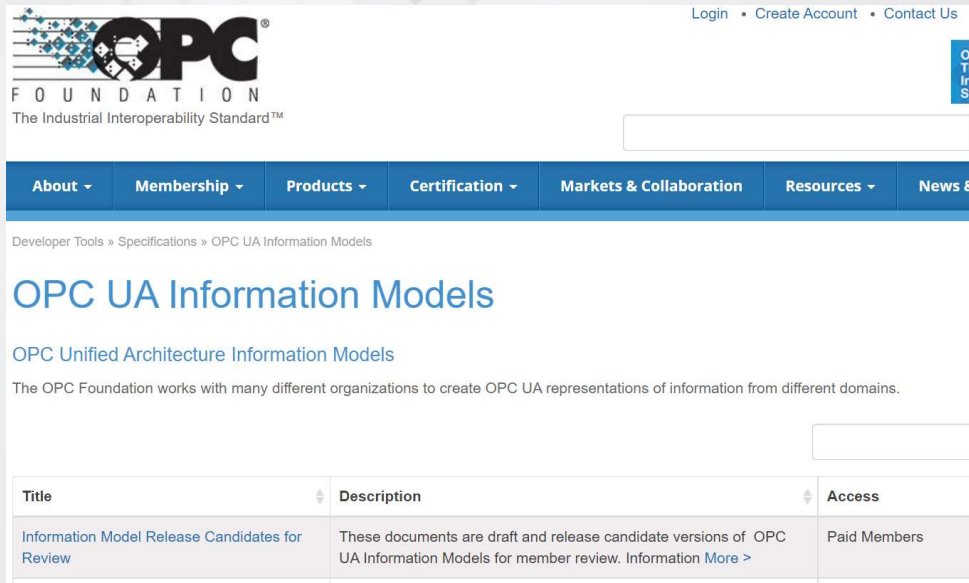
Ansys

OnePredict



SMIC Testbed Use case

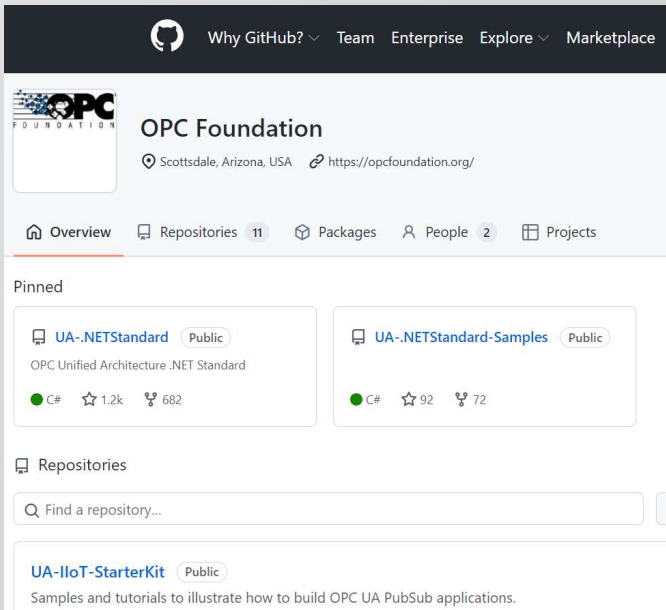
OPC Unified Architecture Information Models



The screenshot shows the OPC Foundation website. The header includes the OPC logo and navigation links: Login, Create Account, and Contact Us. A search bar is present. The main navigation menu includes: About, Membership, Products, Certification, Markets & Collaboration, Resources, and News & Events. The breadcrumb trail is: Developer Tools » Specifications » OPC UA Information Models. The page title is "OPC UA Information Models". Below the title, it says "OPC Unified Architecture Information Models". A paragraph states: "The OPC Foundation works with many different organizations to create OPC UA representations of information from different domains." Below this is a table with three columns: Title, Description, and Access.

Title	Description	Access
Information Model Release Candidates for Review	These documents are draft and release candidate versions of OPC UA Information Models for member review. Information More >	Paid Members

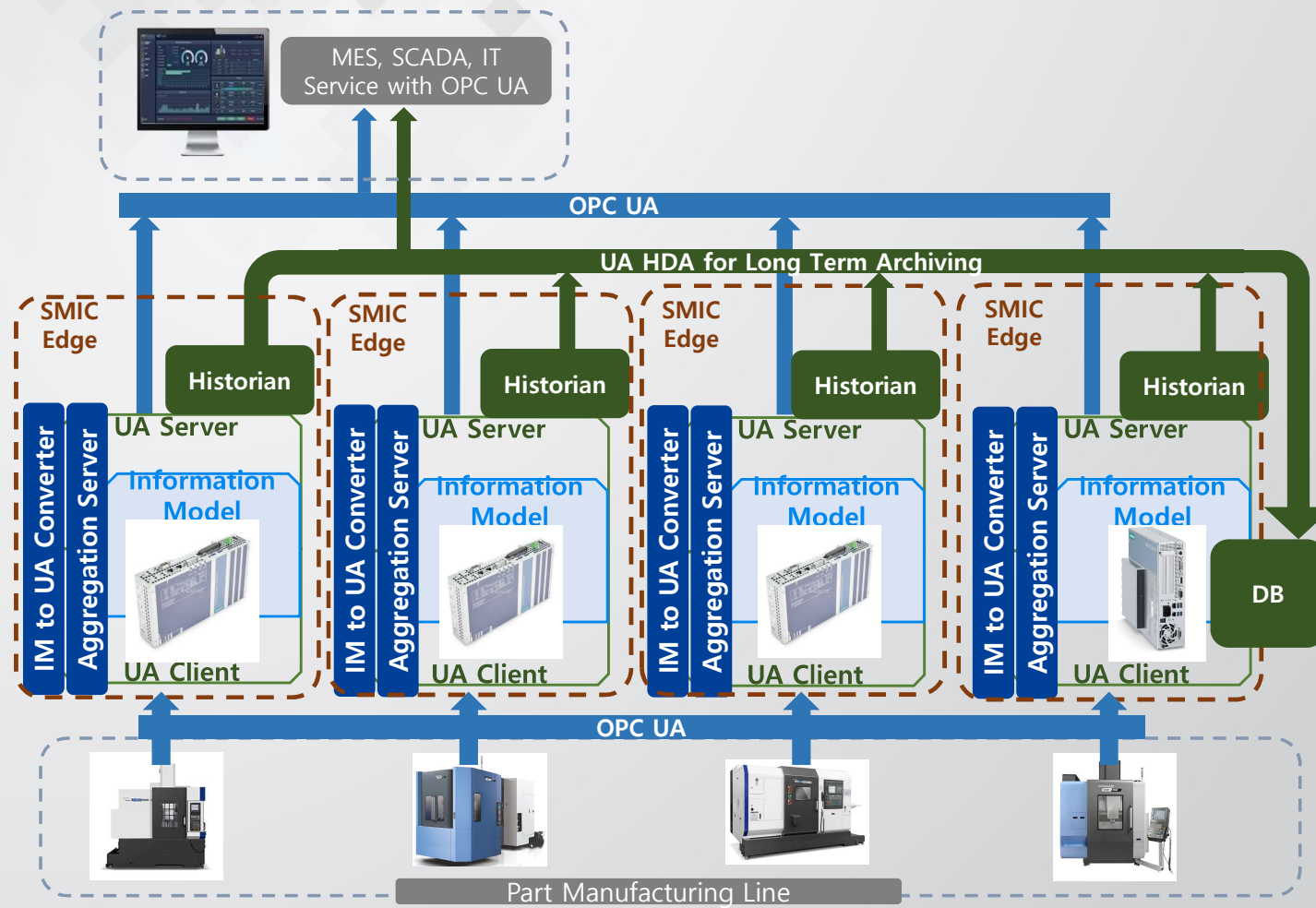
- Information Model for more than 30 domains.
- It's evolving at this moment.



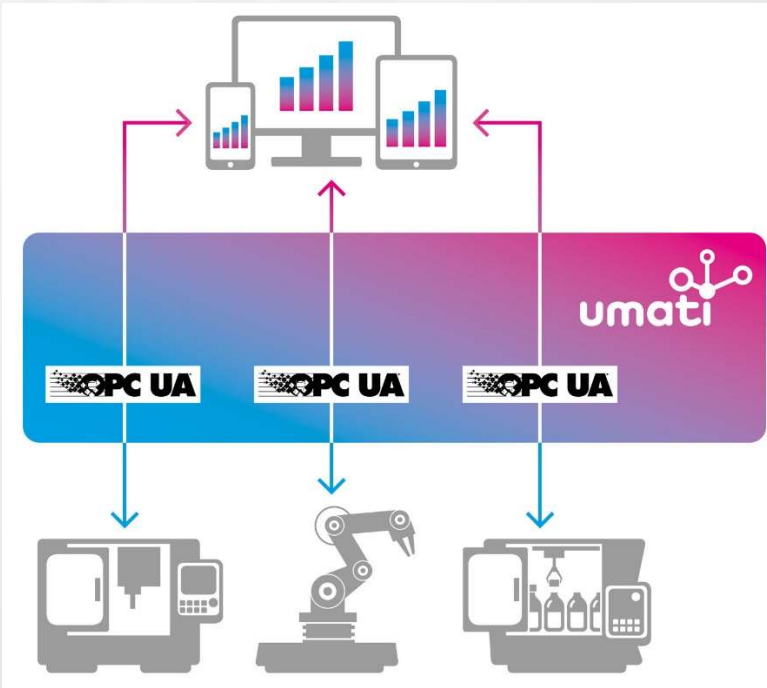
The screenshot shows the OPC Foundation GitHub repository page. The header includes the GitHub logo and navigation links: Why GitHub?, Team, Enterprise, Explore, and Marketplace. The repository name is "OPC Foundation". The location is "Scottsdale, Arizona, USA" and the URL is "https://opcfoundation.org/". The navigation menu includes: Overview, Repositories (11), Packages, People (2), and Projects. The "Pinned" section shows two repositories: "UA-.NETStandard" (Public) and "UA-.NETStandard-Samples" (Public). The "Repositories" section shows a search bar and a repository "UA-IIoT-StarterKit" (Public) with the description "Samples and tutorials to illustrate how to build OPC UA PubSub applications."

- Open for everyone in GitHub

OPC Unified Architecture Information Models



OPC Unified Architecture Information Models



Title: OPC UA for Machinery

Description: The OPC UA for Machinery Information Model defines building blocks for machinery that address use cases across different types of machines defined in various companion specifications. The use cases include locating and identification of all machines in an OPC UA Server, but is not limited to those use cases. The intention are generalized concepts in the area of machinery in order to harmonize the usage of OPC UA in the context of the mechanical engineering industry. Here, "machine" means any piece of equipment that converts energy (e.g., electricity, steam, gas, human power, pressure) to mechanical movements, heat, electrical signals, pressure etc. to do a particular job in an industrial scenario.

Access: Registered User

Downloads

Version	Status	Description	Date Posted (YYYY-MM-DD)	Download
1.01	Release	OPC 40001-1 - UA CS for Machinery Part 1 - Basic Building Blocks (ZIP/PDF)	2021-02-17	Download

Title: OPC UA for MachineTools

Description: OPC 40501 specifies an OPC UA Information Model for the representation of machine tools.

Part 1 aims at straightforward integration of a machine tool into higher level IT systems. The scope is a common interface among machine tools of different technologies, manufacturers and model series. The definitions in this part allow for monitoring the machine tool and giving an overview of the jobs on it. It allows an exchange of information between a machine tool and software systems like MES, SCADA, ERP or data analytics systems.

Access: Registered User

Downloads

Version	Status	Description	Date Posted (YYYY-MM-DD)	Download
1.00.0	Release	OPC 40501-1 - UA CS for Machine Tools Part 1 - Monitoring and Job (ZIP/PDF)	2020-09-25	Download

OPC Unified Architecture Information Models

Information model

No Namespace highlighted

Mapping: No filter...

- OPC Root
 - OPC Objects
 - Aliases
 - DeviceSet
 - DeviceTopology
 - OPC Machines
 - Unit_560
 - 560_monitoring
 - 560_ChannelMonitoring
 - ChannelMode
 - ChannelState
 - FeedOverride
 - Name
 - 560_SpindleMonitoring
 - C_AxisMonitoring
 - AxisLoad
 - AxisName
 - AxisPosition
 - AxisSpeed
 - SP_AxisMonitoring
 - AxisLoad
 - AxisName
 - AxisPosition
 - AxisSpeed
 - X_AxisMonitoring

SINUMERIK model

HIMOLD5605A_XML.xml

- OPC Sinumerik
 - OPC Axis
 - OPC Bag
 - OPC Channel
 - OPC ActualFrame
 - linShift
 - linShiftFine
 - mirrorIrmgActive
 - rotation
 - rotationCoordinate
 - scaleFact
 - OPC AuxiliaryFunctions
 - OPC BaseFrame
 - linShift
 - linShiftFine
 - mirrorIrmgActive
 - rotation
 - rotationCoordinate
 - scaleFact
 - OPC ChannelDiagnose
 - OPC Compensation
 - OPC Configuration
 - OPC CoordSysWorkAreaLimits
 - OPC Diagnose
 - actCycleTimeBrut
 - actCycleTimeNet

SINUMERIK Attributes

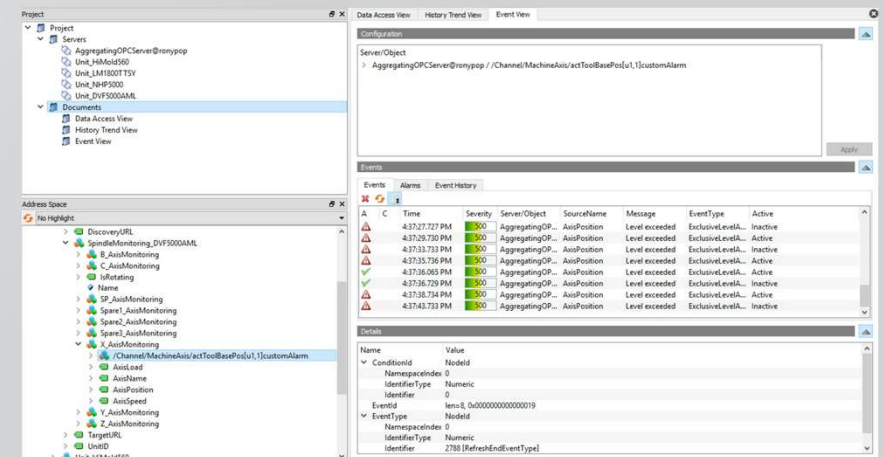
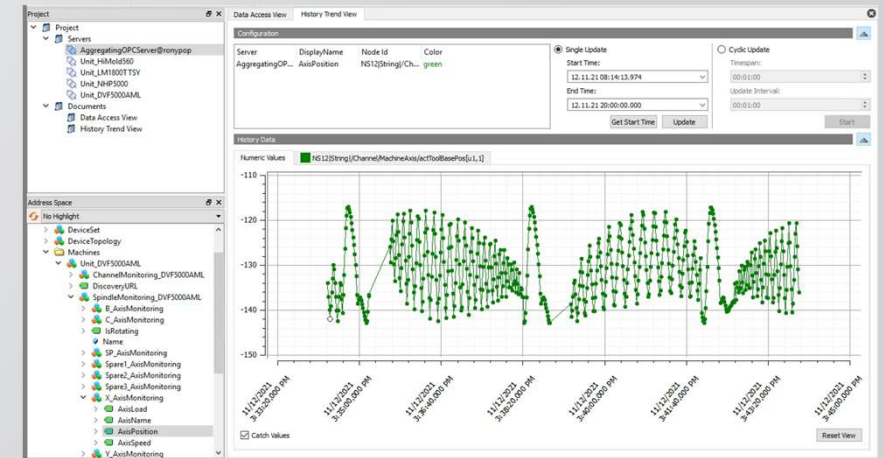
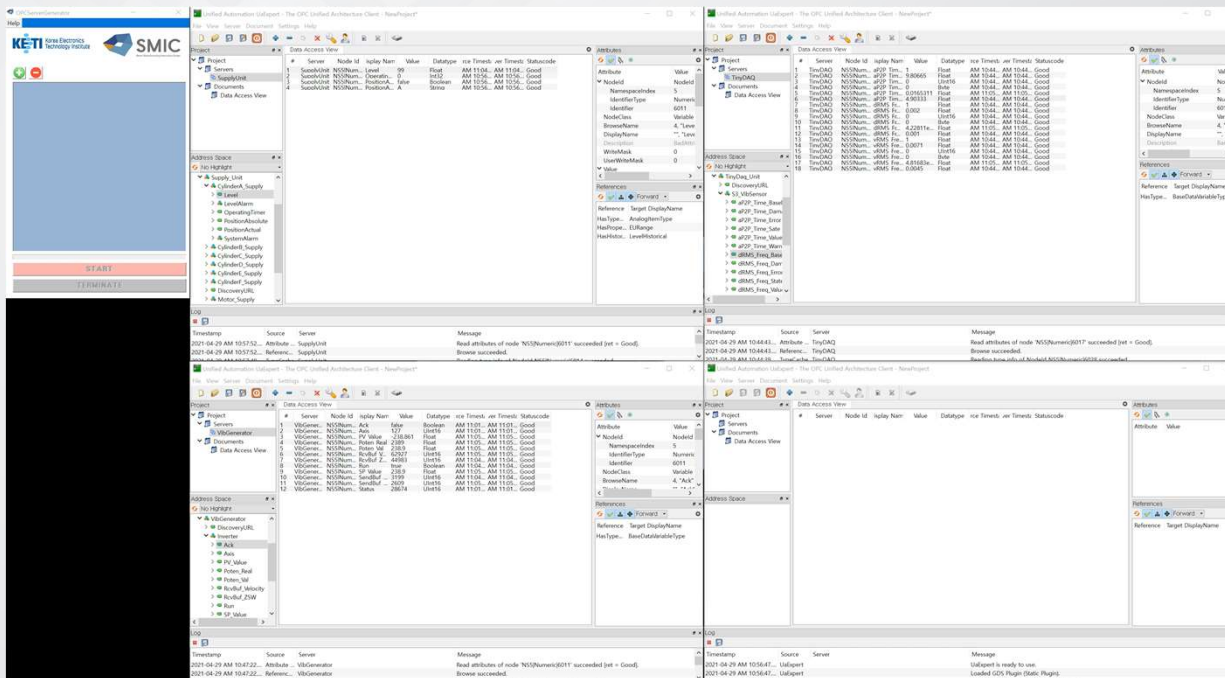
| Attribute | Value |
|-----------------|--------------------------------|
| NodeId | ns=2;s=/Channel/Diagnose |
| NodeClass | Object |
| BrowseName | 2:/Channel/Diagnose |
| DisplayName | Diagnose |
| Description | Diagnostics data, available... |
| WriteMask | 0 |
| UserWriteMask | 0 |
| RolePermissions | |

Additional SINUMERIK Attributes

| | |
|---------------|---|
| EventNotifier | 0 |
|---------------|---|

Information model online

OPC Unified Architecture Information Models





SMIC,
the partner for smart manufacturing

