



ThinkIQ: **CESMII SMIP**

Public-Facing **CESMII SMIP** FAQ's



September 2021



What is the CESMII SMIP?

(per the CESMII Website - <https://www.cesmii.org/technology-smip/>)

- There are **Four Pillars to CESMII's Strategy** for the democratization of Smart Manufacturing (SM). They are:
 1. **SM Ecosystem Integration** – The ability to leverage our Network of Networks,
 2. **SM Enabling Technologies** – Leveraging the Solutions CESMII has funded for some of industry's most challenging problems,
 3. **SM Education** – the tools and skills you need to enable and sustain your Digital Transformation and the
 4. **SM Innovation Platform (SMIP)** – Technology Specifications and an example for industry to follow, to achieve Industrial Plug and Play.
- The Smart Manufacturing Innovation Platform™ (SMIP) is one of four strategic pillars of CESMII's integrated **strategy for democratizing and accelerating the adoption** of Smart Manufacturing by small, medium, and large manufacturers. The platform enables seamless, vendor-agnostic interoperability of manufacturing-centric technologies, including sensing, control, modeling, and analytics, using core capabilities of data ingestion, data contextualization, data management, workflow-based integration, and a marketplace of CESMII-approved apps.
- The (SMIP) platform is the CESMII example, **the proof of concept**, proven through our funded Application Projects and Innovation Projects. But the special technology that makes it all possible, the SM Profiles, are a technology we are making available for the world to adopt. Our vision includes working with vendors in industry, to adopt or replicate our technologies in their products, and then leverage the CESMII SM Marketplace in order to reach a new and very large (democratized Smart Manufacturing) audience with their products and services.
- **CESMII is a new government funded, non-profit, Innovation Enabler**, delivering what no vendor is able to accomplish.



What is the value of the SMIP and what does it include/provide?

(per the CESMII Website - <https://www.cesmii.org/technology-smip/>)

- The CESMII SMIP includes everything needed for CESMII members to launch a smart manufacturing innovation project.
- The SMIP is a high-value pre-assembled environment allowing individual operational technology (OT) functional components to be interoperated, and for data to be orchestrated between these components.
- The SMIP provides innovation teams the ability to easily get started with new projects while shifting the significant cost of tools and infrastructure to post-innovation deployment.
- The SMIP offers better value as compared to the legacy/traditional approach to having to assemble all required tools and infrastructure for non-production innovation projects.
- The core capabilities of the SMIP can be broadly classified into the following:
 - Connectivity (ability to connect to different data sources including other historians)
 - Data historian for storing large datasets
 - Data ingestion (ability to acquire/capture data)
 - Data contextualization (ability to organize data into a structured form)



What is the value of the SMIP and what does it include/provide? (cont.)

- Secure data access, management, exchange (ability to access, store, retrieve the structured data)
- Visualizations: a collection of pre-built UI's, charts, and dashboards
- Insights including cause & effect identification, industry benchmark reporting, cross plant KPIs, identify previously unseen correlations, and even root causes
- Workflow orchestration (ability to orchestrate data movement between OT components)
- Interoperability (ability for OT components to access/interact with the structured data)
- Platform management (ability to create instances of the platform for creating solutions)
- Marketplace (ability for applications to be integrated into the platform for use in developing solutions)



Exhibit A

Components of the **ThinkIQ Core Platform**

■ On Premise

- Connectors
 - » **Included:** Multi-OS, OPC DA

■ In the Cloud

- **Included**
 - » Some basic profiles
 - » OPC UA Server (Ingestion)
 - » History Database (Time Series) and ingestion pipeline (limits: duration, tag count, equipment count, data rights)
 - » GraphQL
 - » Model Builder - Equipment only
 - » Composite types
 - » Trend
 - » Process Layout - (can feed context)
- **Excluded**
 - » Industry Libraries/Equipment Profiles (published and available in marketplace)
 - » Unit Conversion Capability
 - » Dwell Time
 - » Material Model (algorithms for movement detection, materials, material ledger)
 - » Material Flow Diagram (application for exploring the Material Model)
 - » Jupyter
 - » Process Analyzer
 - » Equipment Detail
 - » Scripting (SQL, Python, PHP)
 - » Expressions
 - » Raw Materials Intelligence/Production Intelligence

Who **has access** to the CESMII SMIP?

- The SMIP is **only available** to paid members of CESMII who are working to innovate (develop) **non-production** solutions based on CESMII's integrated **strategy for democratizing and accelerating the adoption** of Smart Manufacturing.
- So, in summary, if any CESMII member wants to leverage the SMIP for a limited term non-production evaluation or to innovate a new CESMII Smart Manufacturing solutions, they have the complete right to do so as long as it follows the guidelines and restrictions of that program.

Where can I find an example (copy) of the **SMIP contract with CESMII**?

- Here are links to the CESMII SMIP / UCLA Contract for DoE funded projects.
 - » <https://www.cesmii.org/roadmap-projects/>

What are the **License Terms** for Using the SMIP?

- It is a Non-Production Sub-License for a limited Term (see Access Frequency and Access Duration in the below Exhibit C).
- Contracted/acquired directly through CESMII / UCLA's Smart Manufacturing Innovation Center (SMIC) in Los Angeles.
- Non-Production license terms: ("Non-Production Term") shall endure with respect to each Member receiving such license from CESMII, until the earlier of the date (i) the CESMII Core Platform Access Duration as per the table in Exhibit C; (ii) such Member ceases to be a CESMII Member; or (iii) the Term of this Agreement per Section 10.
- After the expiration of the Non-Production Term, Members' usage of the ThinkIQ Core Platform shall be terminated by Company (ThinkIQ).

Exhibit C

Nominal Requirements for CESMII Platform Non-Production License Agreement

Requirements	Existing Member	As part of Roadmap/Application Project Team or a CESMII SM Innovation Center (SMIC)
CESMII Core Platform Access Frequency	Platinum: unlimited Gold: twice per annual membership period Silver: once per annual membership period	Unlimited
CESMII Core Platform Access Duration	Up to 90 days (any exceptions can be negotiated) on R&D/trial/non production use	Through full duration of project or SMIC engagement
CESMII Support	Access & documentation	Access & documentation
Platform Instantiation	Multi-tenant only	Multi-tenant only
Request process	Simple form description of use case, location... <ul style="list-style-type: none"> • Clearly defined objectives • Mutually agreed-on success criteria 	Unlimited
Case Study completed based on successful conclusion	Case Study completed based on successful conclusion	Highlight project/SMIC on website & at marketing events Opportunity to present at institute reviews
CESMII's default limit on database size	200 GB	200 GB



What happens after the **Limited Term Non-Production Sub-License** expires?

- If a member desires to continue use of such license beyond the allowed CESMII Core Platform Access Frequency as per the table in Exhibit C, it may purchase a Production License of the ThinkIQ Core Platform from Company (ThinkIQ), the terms of which Company (ThinkIQ) and CESMII will negotiate in conjunction with the Production License Agreement.
- CESMII and Company (ThinkIQ) will also negotiate and execute a Production Platform License Agreement to enable CESMII to offer its members the ability to use the ThinkIQ Core Platform for production purposes **of the CESMII Platform** (“Production License Agreement”) via Software as a Service offering.
- As of July 1, 2021 – CESMII and ThinkIQ are working to define commercial terms to allow a member to **“transition” the ThinkIQ portion** of the Non-Production license agreement between ThinkIQ and CESMII to a Production License Agreement directly with ThinkIQ.
- CESMII would have a similar agreement with their members that want to use the non-ThinkIQ portions of the SMIP for Production use. It references Exhibit C which is also pasted below. Please do not share externally as this is not officially approved and is not final.
- The concept is that for Production use of the Core Platform (defined in Exhibit A) below that the member would sign a production license with CESMII and ThinkIQ. If the member wanted production use of the aspects of TIQ software that are outside of the Core Platform, then CESMII and ThinkIQ were discussing the possibility of the member directly contracting with ThinkIQ.



Who provisions the **CESMII SMIP** subscription?

- Provisioning of the SMIP is handled fully by CESMII.

Who will provide **Technical Support**?

- Support for the SMIP platform is only provided by CESMII.

What about **System Integration Partners'** use of the SMIP?

- Only a CESMII member (including Partners that are members) can subscribe to the SMIP.
- A CESMII member who subscribes to the SMIP, may engage internal and external resources (Partners) as needed to assist with their innovation effort (i.e., using a Partner as a sub-contractor).
- Only the CESMII member has the right to use the SMIP.
- The Partner does not have licensing rights to use the SMIP to innovate a solution for their own commercial use.

What about CESMII DoE **cost-share funding opportunities**?

- If a CESMII member is seeking cost-share funding from the government. Then they need to go through the RFP process with CESMII - but they would still be receiving very limited support from Jonathan Wise.
- Timing and availability of RFP funding is also a limitation – as RFP's are issued from the DoE on a limited and irregular basis.