

# KDD027 - Substitution of SAP MII

Status	Approved
Owner	NICASTRI-ext, Michele
Stakeholders	BLANCKE, Ward PETTIFORD-ext, owen PASQUALI, Laurent GUEYE, Thierno

## Issue

SAP MII (Manufacturing Integration and Intelligence) will stop being supported by SAP after 2027 (or 2030 for extended support). There are currently two MII instances used by Syensqo:

- Composite ITAR MII (US), is already 100% managed by Syensqo
- Global MII (based in EU) is currently shared with Solvay, will be cloned

This KDD document presents the possible options and identifies the best proposal, analyzing the implications and impacts under different points of view: Future Proof Solution, Scalability, Best Practice adherence.

Three options are available:

- A) continue running on MII after end of official support, managing internally or via a 3rd party provider the product maintenance and adaptations
- B) substitute MII with SAP Integration Suite, and connect all MES Systems to S/4HANA using the technical objects available in it (BTP Connectors)
- C) remove MII and directly connect MES systems and Labware/WEBLims to SAP S/4HANA via the current StarTek platform.

## Recommendation

Option B is the recommended solution: substitute MII with SAP Integration Suite, and connect all MES Systems and Labware/WEBLims to S/4HANA using the technical objects available in it (BTP Connectors)

## Background & Context

MIl acts as a middle-ware to connect the MES systems and Labware/WEBLims with the following data flows (not all of them are relevant for all plants /MES systems):

- process orders from SAP ECC to MES
- production confirmations from MES to SAP ECC
- production goods movements from MES to SAP (consumption and goods receipt)

These process are in place for both WP1 (WPX in case of ITAR relevant sites) and PF1. The to-be infrastructure does not foresee an equivalent of the current WPX: <https://wiki.syensqo.com/x/8EOYNQ> ITAR relevant plants will run in the main S/4 HANA instance

There are no cases of direct user interactions with MII: it is used only as a middleware between ECC systems and MES systems.

Data Analytics and Reporting Features (KPI, OEE, Data Intelligence, etc) are not used. This is valid for both MII instances.

## Assumptions

- MES systems in the affected plants won't change and MES functionalities and implementations in the affected plants will remain stable during the ERP Rebuild project
- Other functionalities potentially covered by SAP Digital Manufacturing is addressed in separate document [KDD050 - Strategy for MES systems and SAP Digital Manufacturing](#)

## Constraints

- The MII substitution will synchronize with ERP Rebuild go-lives. The new solution will be available for plants running on the new S/4HANA Platform. These Go-Lives may happen in different waves, therefore MII can continue running between waves on a subset of the current plants.

## Impacts

- Conveying the current MII flows via the SAP Integration Suite must be synchronized with the ERP Rebuild go-lives timeline, to optimize the effort and avoid temporary solutions that would be wasted in the long run.
- The affected plants and MES systems must be prepared to adhere to the unified communication protocol defined by the SAP Integration Suite

## Business Rules

This is a pure technical KDD, no business impact.

## Options considered

### Option A: Keep MII

In this option we ignore the expiry date of MII maintenance and we keep it running for the current plants and MES systems after it.

The Risk related to this option is the need to build up an internal or 3rd party maintenance team to take care of the system after the SAP maintenance expiry. It is also a non-Future Proof and low-scalable solution.

This Option implies very little effort both on S/4HANA side and zero effort on current MES systems, as it keeps all current connectors in place as they are.

Pro's	Con's
<b>Functionalities:</b> current functions are guaranteed	<b>Future Proof:</b> this solution is not future-proof, as any new functionality, extension, improvement will require bespoke implementation.
<b>Simplicity:</b> minimal changes required, only to make sure current MII connectors with ECC will work with SAP S/4HANA	<b>Scalability:</b> the solution will be hardly scalable, as connecting new MES systems and new plants to the current MII instances will require MII skills will become scarce and expensive after the system end of maintenance and dismissal by most of the companies using it.
<b>Effort:</b> minimal project effort, we just need to guarantee that the custom connectors currently used in the MII-ECC landscape will be adapted to S /4HANA.	<b>Best Practice:</b> The solution is not on SAP Road Map and does not fit in Best Practices
	<b>Maintainability:</b> after the expiry date of MII for SAP Maintenance, an internal or 3rd party team must be engaged to keep the product running and maintained.

### Option B: substitute MII with SAP BTP

Digital Manufacturing does not have all functionalities and connectors we had in the MII system. Despite it is the designated substitute of MII, it requires BTP components to fully substitute MII capabilities as MES-SAP middle-ware. Considering this, we think it is a much easier and manageable solution to use directly and only SAP BTP connectors for the interfaces between MES systems and S/4HANA.

There is also a potential risk related to current bespoke implementations in MII to be replicated in the BTP, for this reason the Project Effort is considered to be medium for this option.

This is the option with the best compliance with the SAP standard and Road Map.

It would make sense only if the MES systems was substituted by SAP DM. But, as defined in <https://wiki.syensqo.com/x/-YGMNQ>, all the current MES systems will remain.

Pros	Cons
<b>Future Proof:</b> this solution is future-proof, as once defined, the BTP connectors maintenance, upgrade and extensions are guaranteed in the long term.	<b>Simplicity:</b> this is a full new implementation and requires a detailed analysis of current connectors, how to replicate them to minimize the impact on the local MES systems.
<b>Scalability:</b> the solution is scalable, as connecting new MES systems and new plants to the new SAP BTP layer will be feasible using standard SAP connectors and APIs	<b>Effort:</b> maximum project effort for a full new implementation.
<b>Best Practice:</b> The solution fits in SAP Best Practices	
<b>Functionalities:</b> we can guarantee all current MII functions, via SAP BTP connectors.	
<b>Maintainability:</b> the std functionalities SAP BTP will require minimal maintenance effort.	

### Option C: Remove MII and directly interface MES systems to the current StarTek Layer

In this option, we remove MII and we use the Star Tek layer as a middle-ware, to send process/production orders from SAP S/4HANA to MES systems and to collect actual confirmations and production goods movements from MES systems to S/4HANA.

It is the option with the minimal impact, as it leverage the current Star Tek solution implementation effort. It is based on bespoke interfaces, however the scalability and future-proof of the solution are guaranteed by the Star Tek design, that defined a single standard communication protocol for all different MES systems used in Syensqo.

This option requires that the timeline of the current Star Tek roll out program assures that all plants currently served by MII will move to the Star Tek platform before the MII end of maintenance period.

Pro's	Con's
<b>Future Proof:</b> this solution is considered decent from a future-proof, as any new functionality, extension, improvement will be guaranteed by the standardization introduced by the Star Tek Layer. However, is slightly less valuable than option B.	<b>Scalability:</b> as the Star Tek layer is not a proper Middle-ware software, even though the functional scalability looks good, we technically consider the scalability of this solution very poor.
<b>Functionalities:</b> Star Tek is already in place and connecting several MES systems in different plants, all its functionalities are guaranteed by this approach.	<b>Best Practice:</b> The solution is not on SAP Road Map and does not fit SAP Best Practices
<b>Simplicity:</b> no changes required, simply the current Star Tek Roll Out program goes on while the ERP Rebuild project must guarantee the compatibility of the current ECC-Star Tek connections with the new S/4HANA - Star Tek landscape.	<b>Maintainability:</b> Dedicated maintenance for the bespoke interfaces between the different MES systems, the Star Tek layer and SAP would be required
<b>Effort:</b> small project effort as Star Tek roll outs are already foreseen and adaptation of current Star Tek - ECC interfaces to S/4HANA would be relatively simple	

## Evaluation

The following matrix illustrates the evaluation of each option under the considered criteria:

Criteria	Weight	Option A: Keep MII	Option B: Substitute MII with SAP BTP Integration Suite	Option C: Remove MII and use StarTek as middleware
Future Proof	VH	Very Low	Very High	Medium
Scalability	H	Low	Very High	Very Low
Best Practice	M	Very Low	Very High	Very Low
Functionalities	VH	Very High	Very High	High
Simplicity	H	Very High	Low	Very High
Maintainability	VH	Very Low	Very High	Low
Reduce Project Effort	VH	Very High	Low	High
<b>Total</b>		Medium	High	Medium

## Change log

Version	Published	Changed By	Comment
<b>CURRENT (v. 36)</b>	<b>Sept 13, 2024 16:43</b>	<b>NICASTRI-ext, Michele</b>	
v. 35	Sept 13, 2024 16:31	NICASTRI-ext, Michele	
v. 34	Sept 10, 2024 17:52	NICASTRI-ext, Michele	
v. 33	Sept 10, 2024 17:42	NICASTRI-ext, Michele	
v. 32	Sept 10, 2024 17:41	NICASTRI-ext, Michele	
v. 31	Sept 10, 2024 17:23	NICASTRI-ext, Michele	
v. 30	Sept 09, 2024 15:20	NICASTRI-ext, Michele	
v. 29	Sept 09, 2024 11:23	NICASTRI-ext, Michele	
v. 28	Sept 09, 2024 11:23	NICASTRI-ext, Michele	just formatting option tables

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## Workflow history

Title	Last Updated By	Updated	Status
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There are no pages at the moment.

## Workflow history

This view shows the 5 most recent entries. The complete workflow log is available from the 'Document Activity' menu item.

Sept 26, 2024	Actor	Type	Activity	Version
Approved	 FALL-ext, Cheikh	State	changed state to <b>Approved</b> at 2:30 pm	v36
Pending SteerCo Review	 FALL-ext, Cheikh	State	gave <i>Final Approval</i> approval at 2:30 pm	
		State	changed expiry date to '10 Oct, 2024 01:16 pm' at 1:16 pm	
		State	changed state to <b>Pending SteerCo Review</b> at 1:16 pm	v36
Pending Stakeholder Review	 FALL-ext, Cheikh	State	gave <i>Stakeholder Review</i> approval at 1:16 pm	
<b>Sept 17, 2024</b>				
	WENNINGER-ext, Sascha	State	changed expiry date to '24 Sept, 2024 04:39 am' at 4:39 am	
		State	changed state to <b>Pending Stakeholder Review</b> at 4:39 am	v36
Edited following DA Endorsement	WENNINGER-ext, Sascha	State	gave <i>Minor change</i> approval at 4:39 am	