# The Power of Industrial Metaverse

## Theo Papadopoulos

Program Manager CCT Simulation & Digital Twin

Climate Change

Glocalization

Unrestricted | © Siemens 2025 | XR für den Mittelstand | Papadopoulos | March 2025

Digitalization

Demographic Change



Urbanization



## **Industrial Metaverse to accelerate**

## Innovation

## **Sustainability**

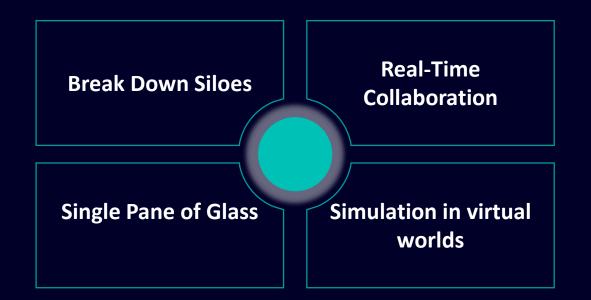
## Access to new tech



We understand the industrial metaverse as an immersive, interactive and frictionless environment which allows collaboration & simulation without siloes

## The Industrial Metaverse

A virtual place to collaborate, experience & interact with the comprehensive Digital Twin where engineering decisions are made leveraging precise and robust data – Real & Digital!





VISUALIZING A REAL SYSTEM PHOTO-REALISTICALLY AND GAINING INSIGHTS IN AN IMMERSIVE ENVIRONMENT



CREATE 2022.1.3 omniverse://ov-devrel/Projects/Customers/Siemens/DemoJune2022/Shote/SH030\_B\_617.0

Camera\_02 9 RTX - Real-Time 9

NVIDIA Omniverse

CACHE: ON LIVE SYNC: OFF

## MEETING IN REAL-TIME, TO REVIEW COLLABORATIVELY AND MAKE CHANGES IMMEDIATELY

		MA4834265_001_U2D_BRACKET_414_11	-
A MAA2883525_PP4.U2D_5     MAA2883525_PP1.U2D_5     MAA2883525_PP1.U2D_5     A MAA2883525_PP1.U2D_5     A MAA2883525_U20_SKID_U2D_1     A MAA2883525_U20_SKID_U2D_1     A MAA2883555_U20_WELD_U20_FIXTURE     A MAA2883505_U00/U20_RASE     A cowl_side_geo_fixture_40001     A cowl_side_geo_fixture_4001     A cowl_side_geo_fixture_4001     A cowl_side_geo_fixture_4001     A cowl_side_geo_fixture_50326     A cowl_side_geo_fixture_4001     A cowl_side_geo_fixture_4033     A mA2883505_U02_U20_RET_U20_PIN_U20_ANC     A MA2883505_U02_U20_DOCKING_U20_CLAMP     A MA2883505_U02_U20_DOCKING_U20_CLAMP     A MA2883505_U02_U20_DOCKING_U20_CLAMP     A MA2883505_U02_U20_DOCKING_U20_CLAMP     A MA2883505_U02_U20_DOCKING_U20_CLAMP     A MA288355_U02_U20_DOCKING_U20_CLAMP     A MA288355_U02_U20_DOCKING_U20_CLAMP     A MA288355_U02_U20_DOCKING_U20_CLAMP     A MA288355_U02_U20_DOCKING_U20_CLAMP     A MA288355_U02_U20_DOCKING_U20_CLAMP      A MA288355_U02_U20_DOCKING_U20_CLAMP      A MA288355_U02_U20_DOCKING_U20_CLAMP      A MA288355_U02_U20_DOCKING_U20_CLAMP       A MA288355_U02_U20_DOCKING_U20_CLAMP       A MA288355_U02_U20_DOCKING_U20_CLAMP			
A MAA2883525_PP1_U2D_5     A MAA2883525_PP2_U2D_5     A MAA2883525_PP2_U2D_5     A MAA2883535_U20_VELD_U2D_1     A STATION_U20_CO40     A MAA2883535_U20_WELD_U20_FIXTURE     A MA2883535_U00_U20_ROLLER_U20_BED_U20     A Ink1     A Ink4     A A MAA2883505_U00_U20_ROLLER_U20_BED_U20     A Ink1     A Ink4     A A A A A A A A A A A A A A A A A	<b>DX</b>	MAA2883525PP3_U2D_S	
C MAA2833525_PP2_U2D_5     J_ MAA291325_U20_SKID_U2D_1     J_ MAA291325_U20_SKID_U2D_1     J_ MAA3883353_U20_WELD_U20_PIXTURE     C MAA2883505_U00_U20_BASE     C MAA2883505_U00_U20_ROLLER_U20_BED_U20     J_ Ink1     J_ Ink4	0 🕵	MAA2883525PP4_U2D_S	•
	02	MAA288352SPP1_U2D_S	
<ul> <li>J. STATION_U20_C040</li> <li>J. MAA3883555_U20_WELD_U20_FXTURE</li> <li>J. MAA2883505_U00_U20_BASE</li> <li>J. MAA2883505_U010_U20_ROLLER_U20_BED_U20</li> <li>J. Ink1</li> <li>J. Ink4</li> <li>J. J. Ink4</li> <li>J. Kather and the second sec</li></ul>	0 🕵	MAA2883525_PP2_U2D_S	۲
	미人	MAA291225_U20_SKID_U2D_1	1
MAA2883305_U00_U20_BASE     MAA2883305_U01_U20_ROLLER_U20_BED_U20     J_ Ink1     J_ Ink4     J_ cowl_side_geo_fixture_50004     J_ cowl_side_geo_fixture_50004     J_ cowl_side_geo_fixture_4050     J_ cowl_side_geo_fixture_4050     J_ cowl_side_geo_fixture_504001     J_ cowl_side_geo_fixture_504001     J_ cowl_side_geo_fixture_504001     J_ cowl_side_geo_fixture_504001     J_ cowl_side_geo_fixture_504001     J_ cowl_side_geo_fixture_50420     J_ cowl_side_geo_fixture_50420     J_ cowl_side_geo_fixture_50420     J_ cowl_side_geo_fixture_50420     J_ cowl_side_geo_fixture_50420     J_ lnk3     J_ Ink6     J_ lnk2     J_ lnk3     MAA2883305_U02,U20_RET_U20_PIN_U20_ANC     MAA2883305_U05_U02_U20_RETACTABLE_U20_PI     MAA2883305_U05_U20_RETACTABLE_U20_PI     MAA2883305_U05_U20_RETACTABLE_U20_PI     MAA2883305_U05_U20_DCKING_U20_CLAMP     MAA2883305_U06_U20_DCKING_U20_CLAMP     MAA2883355_U08_U20_DCCKING_U20_CLAMP     MAA2883355_U08_U20_DCCKING_U20_CLAMP     MAA2883355_U08_U20_DCCKING_U20_CLAMP     MAA2883355_U08_U20_DCKING_U20_CLAMP      MAA2883355_U08_U20_DCKING_U20_CLAMP      MAA2883355_U08_U20_DCKING_U20_CLAMP      MAA2883355_U08_U20_DCKING_U20_CLAMP      MAA2883355_U08_U20_DCKING_U20_CLAMP       MAA288335_U08_U20_DCKING_U20_CAP	日人 ST/	TION_U20_C040	
MA2883505_U01_U20_ROLLER_U20_BED_U20     J_Ink1     J_kik4     J_geometry     J_covi_side_geo_fixture_50004     J_covi_side_geo_fixture_48255     Mesh7     J_covi_side_geo_fixture_48001     J_covi_side_geo_fixture_48001     J_covi_side_geo_fixture_48001     J_covi_side_geo_fixture_50449     J_covi_side_geo_fixture_50449     J_covi_side_geo_fixture_4553     J_covi_side_geo_fixture_4553     J_covi_side_geo_fixture_48141     J_hik5     J_hik2     J_hik3     XMA2883505_U02_U20_RET_U20_PIN_U20_ANC     XMA2883505_U02_U20_RET_U20_PIN_U20_ANC     XMA2883505_U03_U20_RET_U20_PIN_U20_ANC     XMA2883505_U03_U20_RET_U20_PIN_U20_ANC     XMA2883505_U03_U20_RET_U20_PIN_U20_ANC     XMA2883505_U03_U20_DCKING_U20_CLAMP     XMA2883505_U03_U20_DCKING_U20_CLAMP     XMA2883505_U09_U20_DCKING_U20_CLAMP     XMA288355_U09_U20_DCKING_U20_CLAMP      XMA288355_U09_U20_DCKING_U20_CLAMP      XMA288355_U09_U20_DCKING_U20_CLAMP      XMA288355_U09_U20_DCKING_U20_CLAMP      XMA288355_U09_U20_DCKIN	三人	MAA3883535_U20_WELD_U20_FIXTURE	
	0	🕺 MAA288350S_U00_U20_BASE	÷
		MAA2883505_U01_U20_ROLLER_U20_BED_U20	
A geometry     A cowl_side_geo_fixture_50004     A cowl_side_geo_fixture_48255     Mesh7     A cowl_side_geo_fixture_48255     A cowl_side_geo_fixture_48001     A cowl_side_geo_fixture_50449     A cowl_side_geo_fixture_50439     A cowl_side_geo_fixture_50326     A cowl_side_geo_fixture_48141     A cowl_side_geo_fixture_48141     A this5     A thi		ロ 人 Ink1	<
		日 人 Ink4	
		口 人 geometry	÷.
Mesh7			÷
		L cowl_side_geo_fixture_48255	
		Mesh7	۲
		C 🙏 cowl_side_geo_fixture_49650	
		O 🙏 cowl_side_geo_fixture_48001	-
		□ 人 cowl_side_geo_fixture_50449	
		C L cowl_side_geo_fixture_49593	÷
↓ Ink5     ↓ Ink5     ↓ Ink2     ↓ Ink2     ↓ Ink2     ↓ Ink2     ↓ Ink3     ↓ Ink4     ↓ Ink3     ↓ Ink4     ↓ Ink3     ↓ Ink4     ↓ Ink3     ↓ Ink4     ↓ Ink5     ↓ Ink2     ↓ Ink3     ↓ Ink4     ↓ Ink3     ↓ Ink4     ↓ Ink5     ↓ Ink4     ↓ Ink5     ↓ Ink		C L cowl_side_geo_fixture_50326	
J, Ink6     J, Ink3     J, Ink3     J, Ink3     MAA2883505_U02,U20,RET,U20,PIN,U20,ANC     MAA2883505_U03,U20,RET,U20,PIN,U20,ANC     MAA2883505_U04,U20,RETRACTABLE,U20,PI     MAA2883505_U05,U20,RETRACTABLE,U20,PI     MAA2883505_U05,U20,RETRACTABLE,U20,PI     MAA2883505_U05,U20,DERTRACTABLE,U20,PI     MAA2883505_U05,U20,DERTRACTABLE,U20,PI     MAA2883535_U09,U20,DERTRACTABLE,U20,PI     MAA2883535_U09,U20,DERTRACTABLE,U20,PI     MAA2883535_U09,U20,DERTRACTABLE,U20,PI     MAA2883535_U09,U20,DERTRACTABLE,U20,PI     MAA288355_U09,U20,DERTRACTABLE,U20,PI     MAA288355_U09,U20,DERTRACTABLE,U20,PI     MAA288355_U09,U20,DERTRACTABLE,U20,PI     MAA288355_U09,U20,DERTRACTABLE,U20,PIN     MAA288355_U09,U20,DERTRACTABLE,U20,CAP     METRIC,U20,SOCKET,U20,HEAD,U20,CAP     METRIC,U20,SOCKET,U20,HEAD,U20,CAP     Mesh0     Mssh0     Mssh0     Mssh0     Mesh0     Metric,U20,SOCKET,U20,HEAD,U20,CAP     Metric,U20,SOCKET,U20,HEAD,U20,CAP     Mesh0     Mesh0     Mesh0     Metric,U20,SOCKET,U20,HEAD,U20,CAP     Metric,U20,SOCKET,U20,HEAD,U20,CAP     Mesh0     Mesh0     Mesh0     Mesh0     Metric,U20,SOCKET,U20,HEAD,U20,CAP     MEtric,U20,SOCKET,U20		C 🙏 cowl_side_geo_fixture_48141	÷
		🛛 🙏 Ink5	-181
J, Ink3     MAA2883305_U02, U20, RET, U20, PIN, U20, ANC     MAA2883305_U03, U20, RET, U20, PIN, U20, ANC     MAA2883305_U04, U20, RETA-CTABLE, U20, PI     MAA2883305_U04, U20, RETA-CTABLE, U20, PI     MAA2883305_U04, U20, RETA-CTABLE, U20, PI     MAA2883305_U04, U20, SINGLE, U20, CLAMP     MAA2883355_U08, U20, DOCKING, U20, CLAMP     MAA288335_U08, U20, DOCKING, U20, CLAMP     MAA288355_U08, U20, DOCKING, U20, CLAMP     MA288355_U08, U20, DOCKING, U20, CLAMP     MA288355_U08, U20, DOCKING, U20, CLAMP     METRIC, U20, SOCKET, U20, HEAD, U20, CAP     METRIC, U20, SOCKET, U20, HEAD, U20, CAP     MEth0     Meth0     Meth0     Meth0     Meth0     Meth0     METRIC, U20, SOCKET, U20, HEAD, U20, CAP     METRIC, U20, SOCKET, U20, HEAD, U20, CA		ロ 人 Ink6	
MAA2883505_U02,U20_RET_U20_PIN_U20_ANC     MAA2883505_U03_U20_RET_U20_PIN_U20_ANC     MAA2883505_U04U20_RETACTABLE_U20_PIN     MAA2883505_U05_U20_RETACTABLE_U20_PIN     MAA2883505_U05_U20_RETACTABLE_U20_PIN     MAA2883505_U05_U20_DCKING_U20_CLAMP     MAA2883505_U08_U20_DCKING_U20_CLAMP     MAA2883535_U08_U20_DCCKING_U20_CLAMP     MAA2883535_U08_U20_DCCKING_U20_CLAMP     MAA2883535_U08_U20_DCKING_U20_CAP     METRIC_U20_SOCKET_U20_HEAD_U20_CAP     METRIC_U20_SOCKET_U20_HEAD_U20_		0 人 Ink2	
MAA2883505_U03,U20,RET,U20,PIN,U20,ANC     MAA2883505_U04,U20,RETRACTABLE,U20,PI     MAA2883505_U05,U20,RETRACTABLE,U20,PI     MAA2883505_U05,U20,RETRACTABLE,U20,PI     MAA2883505_U06,U20,SINGLE,U20,CLAMP     MAA2883535_U08,U20,DOCKING,U20,CLAMP     MAA2883535_U08,U20,DOCKING,U20,CLAMP     MAA2883535_U08,U20,DOCKING,U20,CLAMP     MAA2883535_U08,U20,DOCKING,U20,CLAMP     MAA2883535_U08,U20,DOCKING,U20,CLAMP     MAA288355_U08,U20,DOCKING,U20,CLAMP     MAA288355_U08,U20,DOCKING,U20,CLAMP     MAA288355_U08,U20,DOCKING,U20,CLAMP     MAA288355_U08,U20,DOCKING,U20,CAP     MAA288355_U08,U20,DOCKING,U20,CAP     METRIC,U20,SOCKET,U20,HEAD,U20,CAP     MEtRIC,U20,SOCKET,U20,HEAD,U20,CAP     Meth0     Meth0     Meth0     Meth0     MetRIC,U20,SOCKET,U20,HEAD,U20,CAP     METRIC,U20,SOCKET,U20,HEAD,U20,CAP     Meth1     Meth1		ロ 人 Ink3	۰
MAA2883505_U04_U20_RETRACTABLE_U20_PH     MAA2883505_U05_U20_U20_RETRACTABLE_U20_PH     MAA2883505_U05_U20_SINGLE_U20_CLAMP     MAA2883505_U07_U20_SINGLE_U20_CLAMP     MAA2883535_U08_U20_DOCKING_U20_CLAMP     MAA2883535_U08_U20_DOCKING_U20_CLAMP     MAA2883535_U09_U20_DOCKING_U20_CLAMP     MAA2883535_U09_U20_DOCKING_U20_CLAMP     MAA2883535_U09_U20_SOCKET_U20_HEAD_U20_CAP     MAA2883535_U09_U20_SOCKET_U20_HEAD_U20_CAP     MAA2883535_U09_U20_SOCKET_U20_HEAD_U20_CAP     METRIC_U20_SOCKET_U20_HEAD_U20_CAP     METRIC_U20_SOCKET_U20_HEAD_U20_CAP     METRIC_U20_SOCKET_U20_HEAD_U20_CAP     METRIC_U20_SOCKET_U20_HEAD_U20_CAP     METRIC_U20_SOCKET_U20_HEAD_U20_CAP     STOP_U20_BLOCK     STOP_U20_BLOCK_11     SENSOR_U20_BLOCK_11     SENSOR_U20_SBLOCKET_U20_HEAD_U20_CAP     Meth0     C DOWEL_U20_PIN     SENSOR_U20_BLOCK_11     Meth0     C METRIC_U20_SOCKET_U20_HEAD_U20_CAP     Meth0     C METRIC_U20_SOCKET_U20_HEAD_U20_CAP     Meth0     C METRIC_U20_SOCKET_U20_HEAD_U20_CAP     Meth0     C METRIC_U20_SOCKET_U20_HEAD_U20_CAP     METRIC_U20_SOCKET_U20_HEAD_U20_CAP	0	C MAA2883505_U02_U20_RET_U20_PIN_U20_AND	Ð
MAA2883505_U05_U20_RETRACTABLE_U20_PH     MAA2883505_U06_U20_SINGLE_U20_CLAMP     MAA2883505_U06_U20_SINGLE_U20_CLAMP     MAA2883535_U08_U20_DOCKING_U20_CLAMP     MAA2883535_U08_U20_DOCKING_U20_CLAMP     MAA2883535_U08_U20_DOCKING_U20_CAP     MAA2883535_U08_U20_DOCKING_U20_CAP     METRIC_U20_SOCKET_U20_HEAD_U20_CAP     METRIC_U20_SOCKET_U20_HEAD_U20_CAP     METRIC_U20_BLOCK     STOP_U20_BLOCK_11     Mesh0     Mesh0     SOVEL_U20_PIN     SENSOR_U20_BLOCK_T1     Mesh0     SENSOR_U20_BLOCK	0	MAA288350S_U03_U20_RET_U20_PIN_U20_ANE	œ.
MAA2883305_U06_U20_SINGLE_U20_CLAMP     MAA2883305_U07_U20_SINGLE_U20_CLAMP     MAA2883335_U08_U20_DOCKING_U20_CLAMP     MAA2883335_U09_U20_DOCKING_U20_CLAMP     METRIC_U20_SOCKET_U20_HEAD_U20_CAP     METRIC_U20_SOCKET_U20_HEAD_U20_CAP     METRIC_U20_BLOCK     MSh0     Msh0     SNORCT     SENSOR_U20_PIN     SSNORCT     Mesh0     SSNORCT     Metric_U20_SOCKET_U20_HEAD_U20_CAP     Metric_U20_PIN     SSNORCT     Metric_U20_SOCKET     Metric_U20_RINC     MEtric_U20_RINCE     ME		MAA2883505_U04_U20_RETRACTABLE_U20_PIF	÷
MAA2883505_U07_U20_SINGLE_U20_CLAMP     MAA2883535_U08_U20_DOCKING_U20_CLAMP     MAA2883535_U08_U20_DOCKING_U20_CLAMP     METRIC_U20_SOCKET_U20_HEAD_U20_CAP     METRIC_U20_SOCKET_U20_HEAD_U20_CAP     METRIC_U20_SOCKET_U20_HEAD_U20_CAP     STOP_U20_BLOCK     STOP_U20_BLOCK_11     Mesh0     Meth0     M	0	MAA2883505_U05_U20_RETRACTABLE_U20_PH	
MAA2883335_U08_U20_DOCKING_U20_CLAMP     MAA2883335_U09_U20_DOCKING_U20_CLAMP     MAA2883335_U09_U20_U20_DOCKING_U20_CLAMP     METRIC_U20_SOCKET_U20_HEAD_U20_CAP     METRIC_U20_SOCKET_U20_HEAD_U20_CAP     STOP_U20_BLOCK     STOP_U20_BLOCK_I1     Mesh0     Mesh0     StOP_U20_BLOCK_I1     SENSOR_U20_BLOCK_I1     SENSOR_U20_BLOCK_I1     Mesh0     SENSOR_U20_BLOCK_I1     SENSOR_U20_BLOCK_I1     Mesh0     Mesh0     Mesh0     Mesh0     Mesh0     Metric_U20_SOCKET_U20_HEAD_U20_CAP     METRIC_U20_SOCKET_U20_HEAD_U20_CAP     Mesh0     Mesh0     Mesh0     Mesh0     Metric_U20_SOCKET_U20_HEAD_U20_CAP	0	MAA2883505_U06_U20_SINGLE_U20_CLAMP	
MAA2883335_U09_U20_DOCKING_U20_CLAMP     CARA2883335_U09_U20_DOCKING_U20_CLAMP     CARA2883335_U09_U20_DOCKING_U20_CAP     CARA2883535_U020_DEAD     CARA288355_U020_DEAD     CARA28855_U020_DEAD     CARA8855_U020_DEAD     CARA8855_U020_DEAD     CARA8855_U020_DEAD     CARA8855_U020_DEAD     CARA855_U020_DEAD     CARA8555_U020_DEAD     CARA8555_U020_DEAD     CARA8555_U020_DEAD     CARA8555_U020_DEAD     CARA8555_U020_DEAD     CARA8555_U020_DEAD     CARA85555_U020_DEAD     CARA85555_U020_DEAD     CARA8555555_U020_DEAD     CAR			
METRIC, U20, SOCKET, U20, HEAD, U20, CAP     RISER, U20, POST     C, METRIC, U20, SOCKET, U20, HEAD, U20, CAP     C, DOWEL, U20, PIN     C, STOP, U20, BLOCK, I1     RAACKET     Mesh0     C, DOWEL, U20, PIN, I1     C, SENSOR, U20, BRACKET     METRIC, U20, SOCKET, U20, HEAD, U20, CAP			
RISER, U20, POST     METRIC, U20, POST     METRIC, U20, PIN     STOP, U20, BLOCK     STOP, U20, BLOCK, 11     Mesh0     C, DOWEL, U20, PIN, 11     SENSOR, U20, BRACKET     METRIC, U20, SOCKET, U20, MEAD, U20, CAP			
METRIC U20, SOCKET U20, HEAD, U20, CAP     COWEL, U20, PIN     C			
C DOWEL U20.PIN     C STOP.U20.BLOCK     STOP.U20.BLOCK.II     SBACKET     Mesh0     SANDOWEL U20.PIN.II     SENSOR.U20.BRACKET     METRIC.U20.SOCKET.U20.HEAD_U20.CAP			
STOP, U20, BLOCK     STOP, U20, BLOCK, 11     STOP, U20, BLOCK, 11     Stop, U20, BLOCK, 11     Mesh0     Mesh0     COWEL, U20, PIN, 11     SENSOR, U20, BRACKET     METRIC, U20, SOCKET, U20, HEAD, U20, CAP.			
C STOP, U20, BLOCK, I1     Mesh0     Mesh0     C X DOWEL, U20, PIN, I1     SENSOR, U20, BRACKET     METRIC, U20, SOCKET, U20, HEAD, U20, CAP.			
BRACKET     Mesh0      COWEL U20. PIN.11      SENSOR.U20. BRACKET      METRIC. U20. SOCKET. U20. HEAD. U20. CAP			
Mesh0 C C DOWEL U20 PIN 11 C C SENSOR U20 BRACKET C METRIC U20 SOCKET U20 HEAD U20 CAP.			
COWEL_U20_PIN_I1      SENSOR_U20_BRACKET      K METRIC_U20_SOCKET_U20_HEAD_U20_CAP			
C 🕺 SENSOR_U20_BRACKET 🔹 🐨 🖬 🕵 METRIC_U20_SOCKET_U20_HEAD_U20_CAP.			
🗖 🕵 METRIC_U20_SOCKET_U20_HEAD_U20_CAP_ 🐡			
NAAMS_U20_PIN_U2U_RETAINER 🖤			
METRIC U20 SOCKET U20 HEAD U20 CAP *			
METRIC U20 SOCKET U20 HEAD U20 CAP     METRIC U20 SOCKET U20 HEAD U20 CAP			
<ul> <li>METRIC U20 SOCKET U20 HEAD U20 CAP.</li> <li>METRIC U20 SOCKET U20 HEAD U20 CAP.</li> </ul>			
D C DOWEL U20 PIN 12			
METRIC U20 PIN 12			

Propert

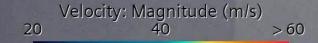
Root Laver

SIEMENS

Unrestricted | © Siemens 2025 | XR für den Mittelstand | Papadopoulos | March 2025

. GetFirstTargetPrimForRel at line 422 of CAbw/ca6c508eae419cf81USD\pxrAusdUsd5keRbindingAPI.cpp - /World/FemaleA/ManRoot/CC3 Base\_Plus/CC3 Base\_Plus/RL BoneRoot.skehanimationSource - relationship has more than one target. Only the first will be us

**CONTINUOUSLY AND PHYSICS-BASED** EVALUATING, SIMCENTER SIMULATING AND PREDICTING THE **BEHAVIOR OF A SYSTEM** 





MONITOR, ANALYZE AND MANAGE REAL ASSETS INTERACTIVELY IN CLOSED LOOP



## What do most people see?



Created with Nvidia Omniverse



### What do we see as ? "More Real than Real"



Created with Nvidia Omniverse



# **Industrial** Metaverse

## See it.



## Ask it.



**Design & Engineering** 

Planning & Assembly

**Service & Operations** 







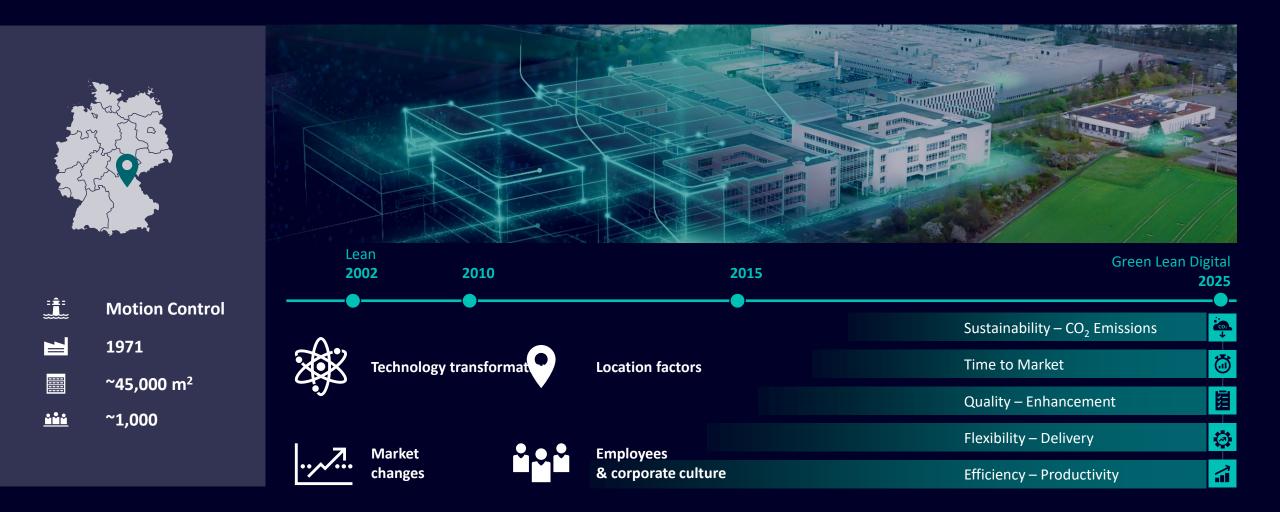


Electronics Factory Erlangen – Blueprint for Industrial Metaverse



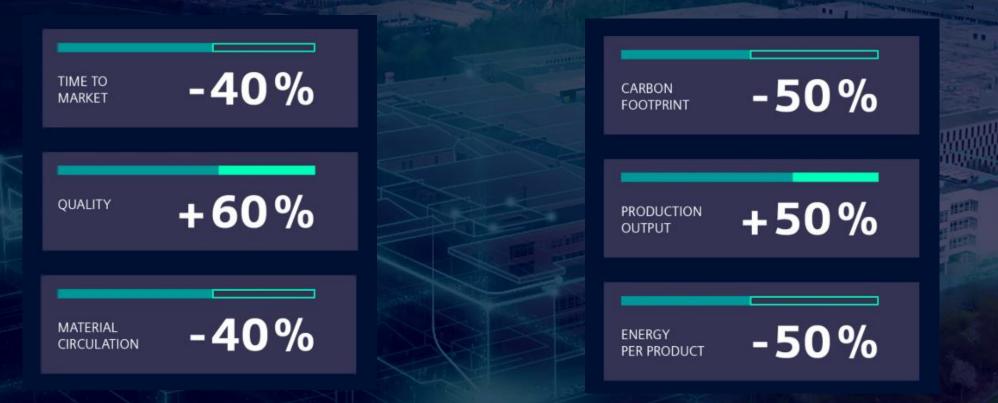


### Siemens Electronics Factory Erlangen Customer Zero for the Industrial Metaverse



### SIEMENS

Siemens Electronics Factory Erlangen First impressive results from factory's transformation



SIEMENS

## S FREYR Industrial Metaverse

SIEMENS

Collaboration with a startup – to scale battery production

LOGIN

hm

+) Sign In

### S FREYR Industrial Metaverse

屳

Home

21

Industrial Metaverse

5

Plant ۲

Energy Manager

A

1

Quality

Prediction 8×

and Service

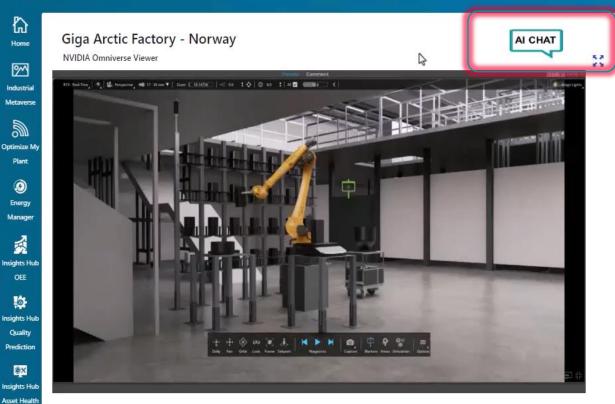
?

 $\Diamond$ 

<u>نې</u>

Å

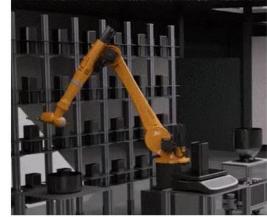
#### powered by SIEMENS Xcelerator



Inform	ation
morm	acion



Physical Asset Info	🔗 Insights Hub	Virtual Asset Info	S Teamcenter
Name: Cell Packing Robot		Name: Robot Cell	
Type: Robot		ID: VA-7653091	
Manufacturer: Kuka		Revision: A	
Status: Info		Description:	





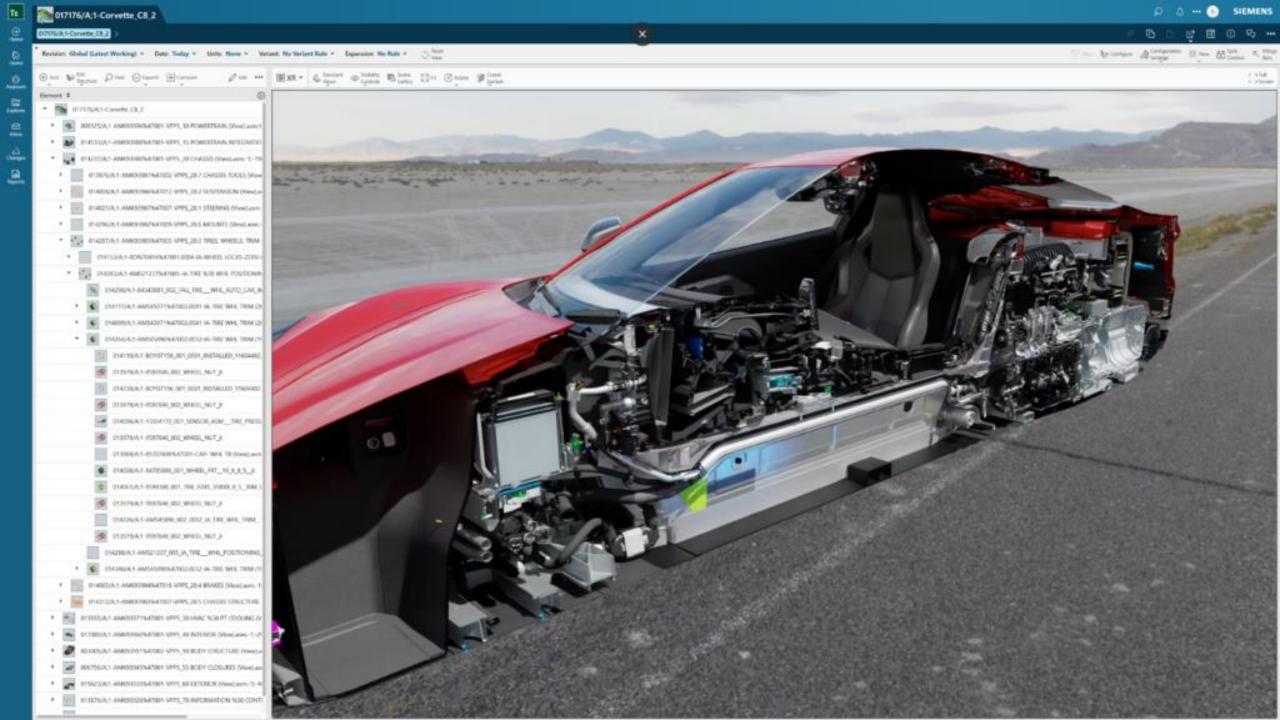
Performance (%) 98.0	Active Issues	Number of Cycles 127359
Quality (%) 92.0	Last Serviced 03 March 2023	Next Service Date 03 June 2023
Availability (%) 95.0	Mean Amb Temp 16 °C	Mean Vibration 0.000161 m/s <sup>2</sup>

# Digital Reality Viewer Teamcenter X

HD HYUNDA







## SIEMENS

## **NX Immersive Designer**

Seamlessly connecting the real and digital worlds.

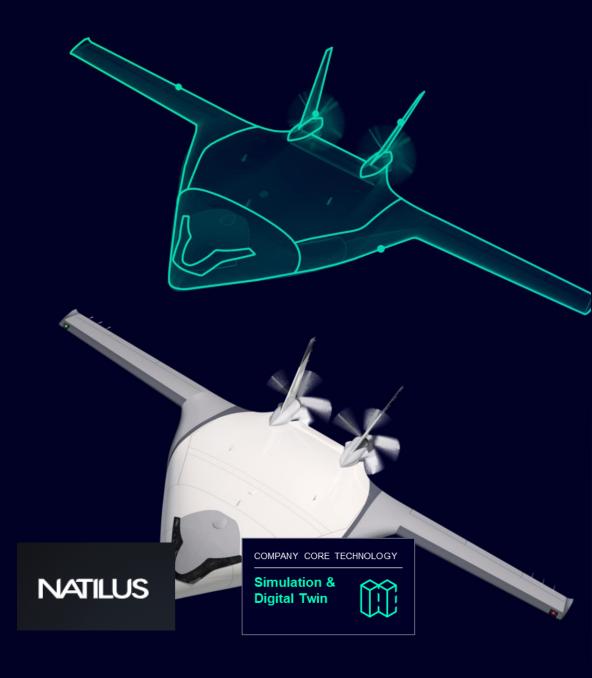
Unrestricted | © Siemens 2025 | XR für den Mittelstand | Papadopoulos | March 2025

## SONY

**XR Head Mounted Display** 

The most natural way to experience the

Digital Twin.



### NATILUS Next generation of cargo aircraft with immersive engineering

### **Customer challenge**

- Aircraft must be aerodynamically, geometrically and weight-optimised in order to be competitive in freight transport
- $\rightarrow$  How to reduce the cost of airfreight by more than 50%

### **Solution**

- Integrating digital twin into the Immersive Engineering environment
- Engineers precisely collaborate on the 3D design at human-scale
- Use of the Industrial Metaverse to test aircraft-design, -assembly and carbon fiber usage in real time

### **Customer benefits**

- Up to 50% time reduction to design a new prototype
- Enabling simulations of innovative aircraft geometries and materials
- Attracting new investors during the early design phase through interactive concept presentation in the industrial metaverse
- $\rightarrow$  Secured initial orders of more than \$6 billion and 400 aircraft

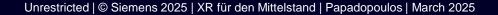
Sources: <u>Natilus uses immersive engineering for aircraft design - Siemens Global</u> <u>Siemens solutions help startup company develop airplanes that can reduce the</u> <u>cost of airfreight by 50 to 60 percent</u>

## SIEMENS

Europe & Metaverse New Public – Private Partnership "Virtual Worlds"



### Siemens takes the lead for PPP "Virtual Worlds"





# Industrial Metaverse

Its the next step in the digital transformation

# **Questions**?

SIEMENS



### Siemens AG

**Theo Papadopoulos** 

Program Manager for CCT Simulation & Digital Twin Head of Siemens Industrial Metaverse Lab

E-mail <u>theodoros.papadopoulos@siemens.com</u> LinkedIn <u>linkedin.com/in/theopapadopoulos85</u>





