



# ZEISS - Connected Smart Factory

Info Sharing 15.06.2023 for SAP@Walldorf

Target and Targetgroup

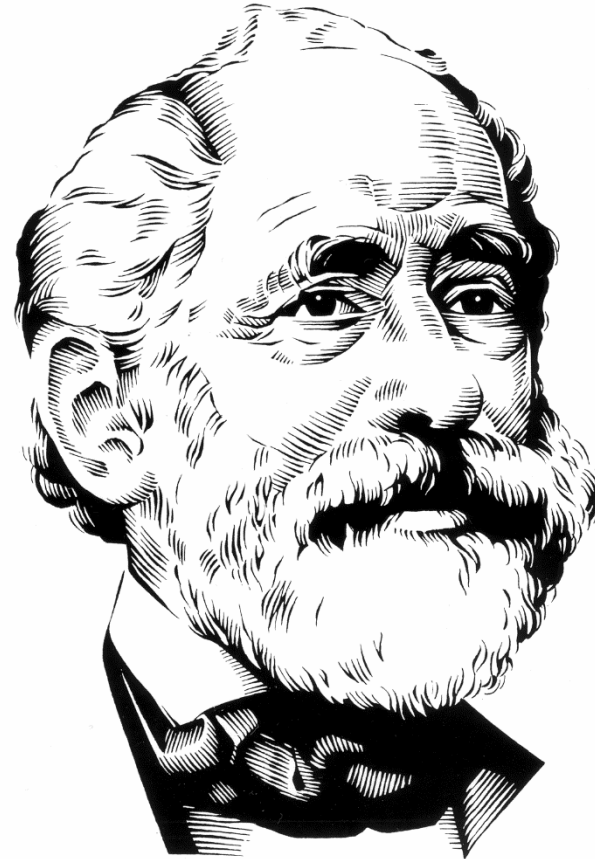
Creator  
CSF Team, 15.06.2023

Approved from  
Jochen Scheuerer Head of CSF

# Founder and Partner Enabling Customers

Carl Zeiss founded a workshop for precision mechanics and optical instruments in Jena in 1846. Ernst Abbe – a young scientist and collaborator for the company – later joined the company and became a partner in 1876.

Optical technologies pave the way for many innovations. Carl Zeiss and Ernst Abbe recognized this early on, and this led to the creation of innovative new products and business areas that enabled the company to meet its customers' needs.



**Carl Zeiss**  
Founder



**Ernst Abbe**  
Partner

# ZEISS Contributions as Enabling Partner

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More than **30**  
Nobel laureates  
used ZEISS systems to advance  
scientific progress

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About **80%**  
of microchips worldwide  
made on ASML lithography systems with  
ZEISS optics

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More than **50**  
camera lenses were sent  
to space  
during the NASA space missions

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**3**  
technical Oscars  
were conferred on ZEISS lenses and movies filmed using  
ZEISS lenses have received numerous Oscar-nominations

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**600,000**  
surgical procedures every year  
with the ZEISS KINEVO 900



## Investments in Research & Development

Innovations shape the future: Research and development teams at ZEISS are working hard to constantly expand our role as technology leader and market shaper. ZEISS has been making sustainable investments in R&D in order to achieve this goal.

New patent applications

**638**

R&D investments in € million

**1,151**

Investment by % of revenue

**13%**



# ZEISS Worldwide

Employees

**40,129**

Locations worldwide (rounded)

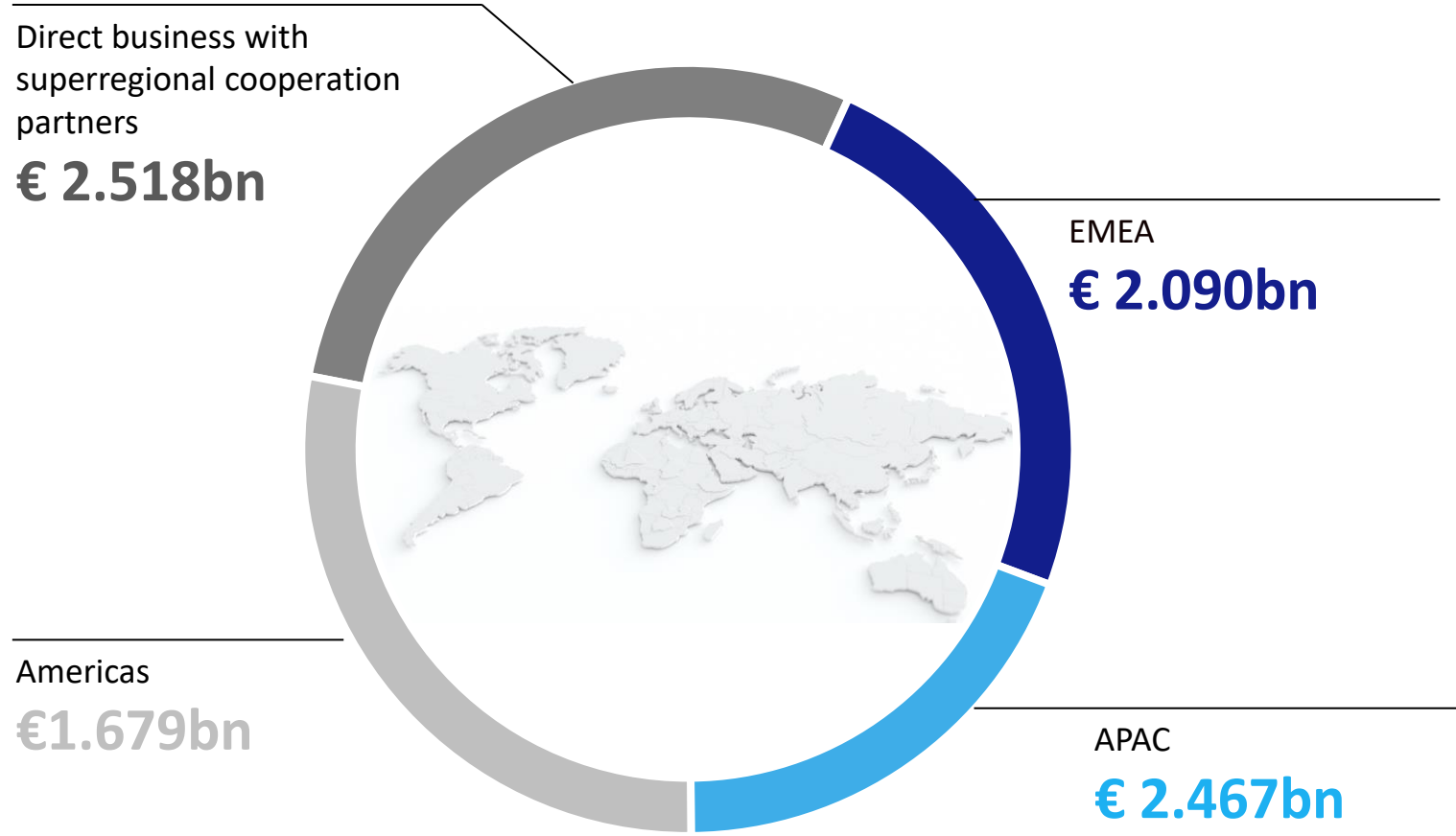
**100**

Countries (rounded)

**50**

 **Headquarters:  
Oberkochen, Germany**

# ZEISS Markets



Revenue in € billion

**8.8**

EBIT in € billion

**1.6**

Revenue increase versus previous year

**+16%**

# Shaping the Future

## The ZEISS Segments

Semiconductor  
Manufacturing  
Technology



**2.757** € billion in revenue

**6,215** employees

Industrial  
Quality & Research



**2.066** € billion in revenue

**7,534** employees

Medical  
Technology



**2.251** € billion in revenue

**6,829** employees

Consumer  
Markets






**1.569** € billion in revenue

**13,008** employees

# Shaping the Future

## ZEISS products and solutions from the world of optics

 Vision Care	 Medical Technology	 Semiconductor Manufacturing Technology	 Industrial Quality Solutions  Spectroscopy	 Research Microscopy Solutions	 Photography  Cinematography	 Hunting  Nature Observation	 Simulation Projection Solutions  Planetariums	 Digital Solutions  OEM Solutions
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Who is CSF

# CSF and service/product portfolio

## Team

### Head of Connected Smart Factory

Jochen Scheuerer

### Process Consultant

Andreas Busse

Andrius Paplauskas

### Lead Engineer

Marc Slonek

### Lead Architecture and Data Mining

n/n

### Application Design and Operation

Dimitri Bauer

Andrea Claudiu Niculescu

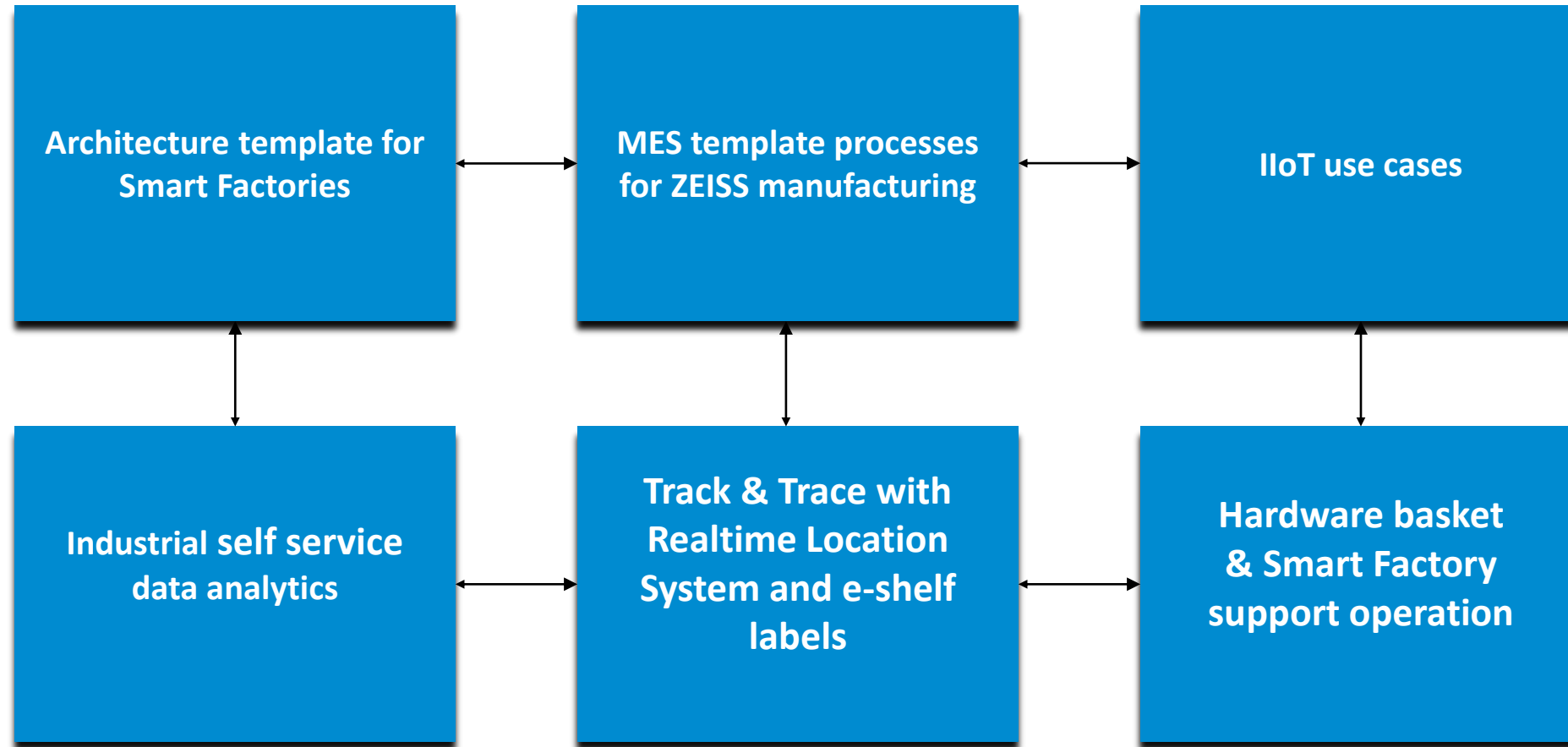
David Schwarzkopf

**And 18 open roles under:**

**<https://www.zeiss.de/corporate/karriere/stellenangebote-und-bewerbung.html>**

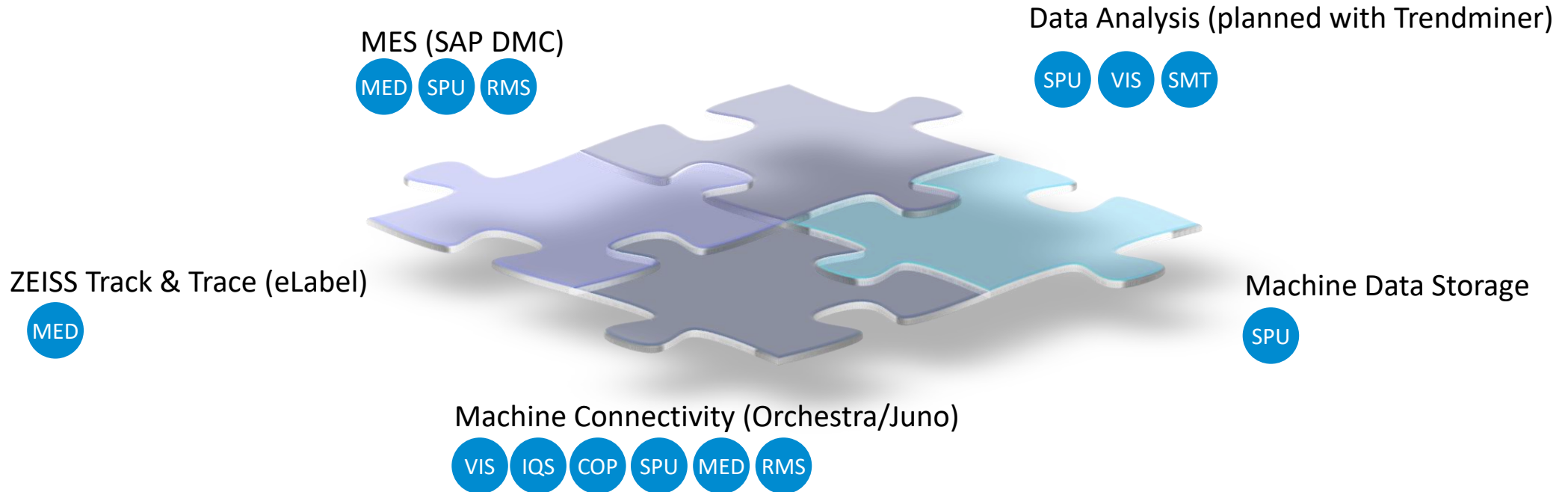


**> 15 external FTE**



## Services

CSF establish 5 services. Blue bubbles are internal customers which using already this services.



Who is CSF

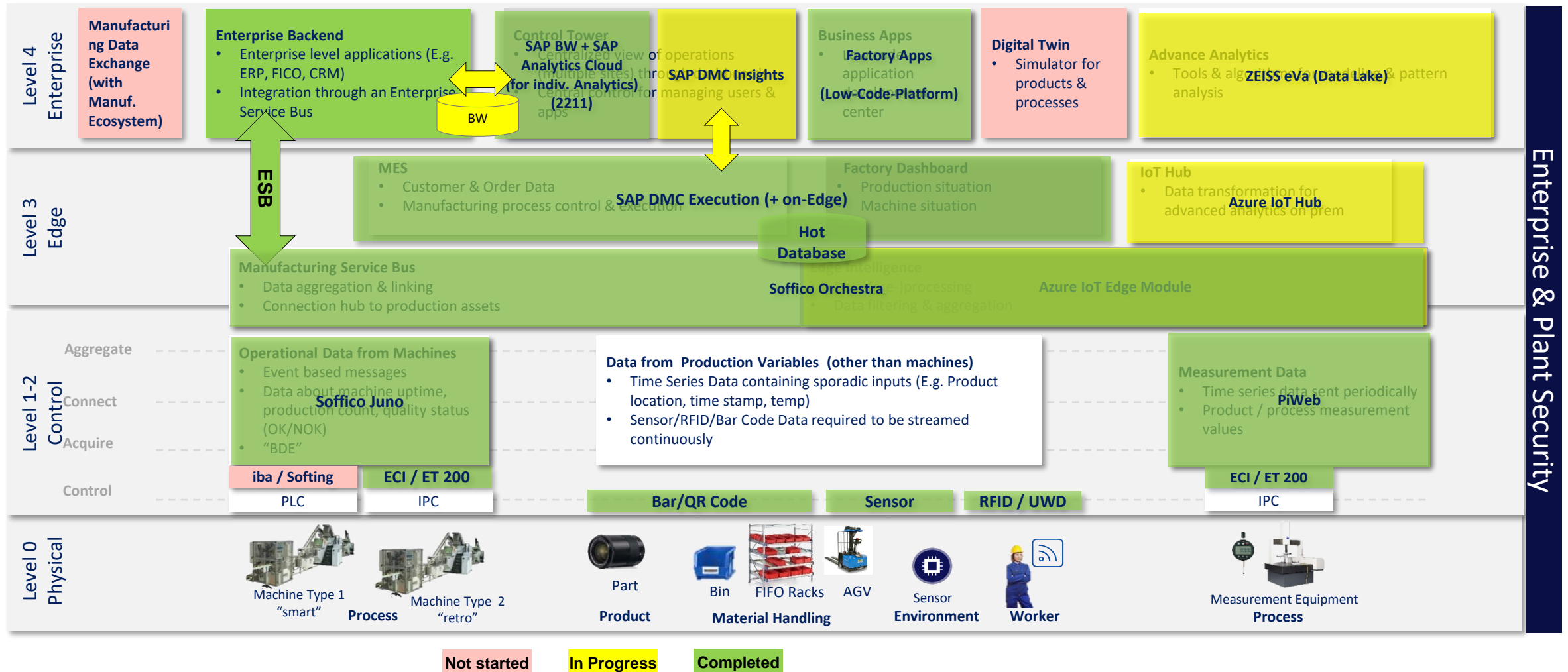
# CSF and architecture

# ZEISS Target Connected Smart Factory (CSF) Architecture – Functional Overview with IoT Platform and MES

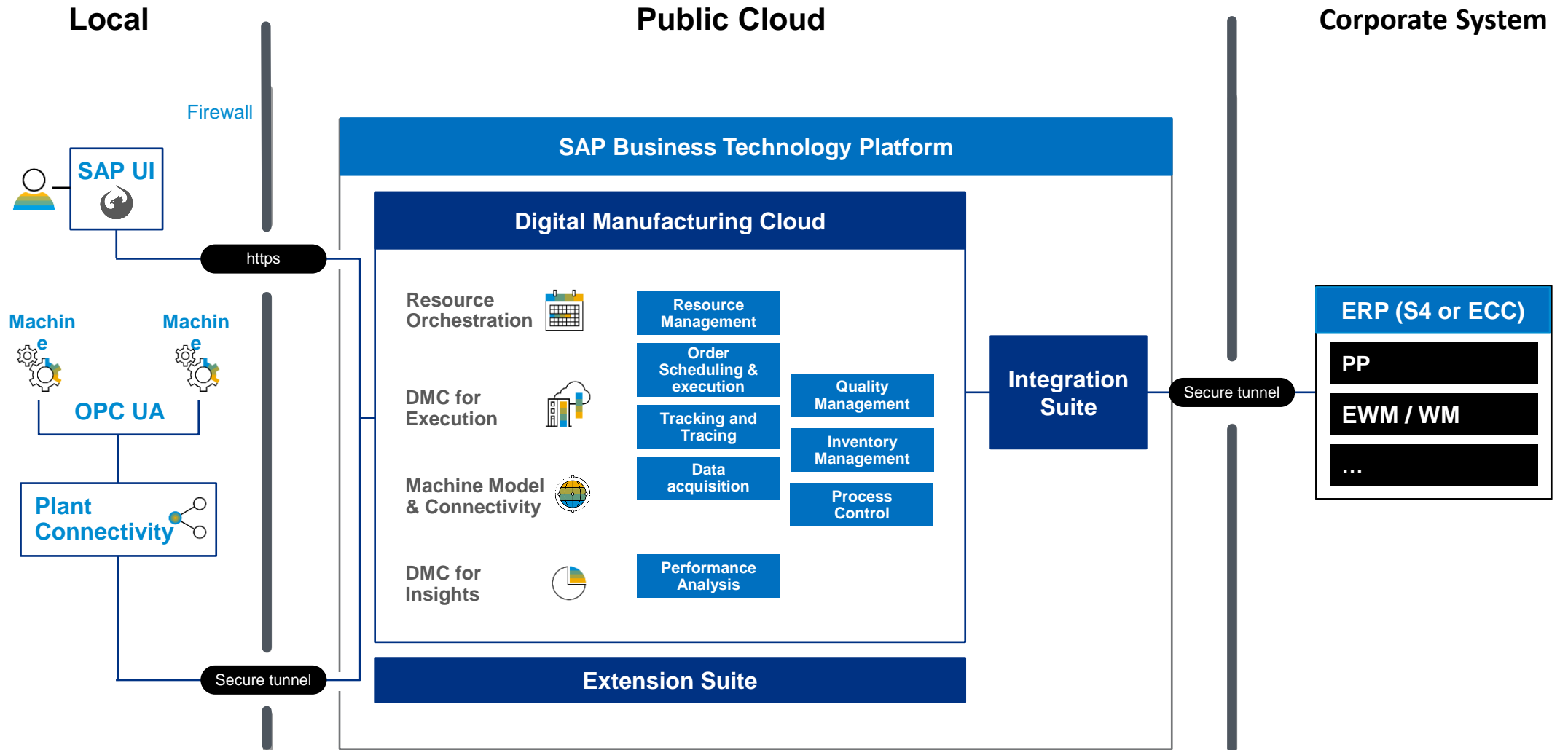
## Definition of Standards (Status)



Version: 24.10.2022



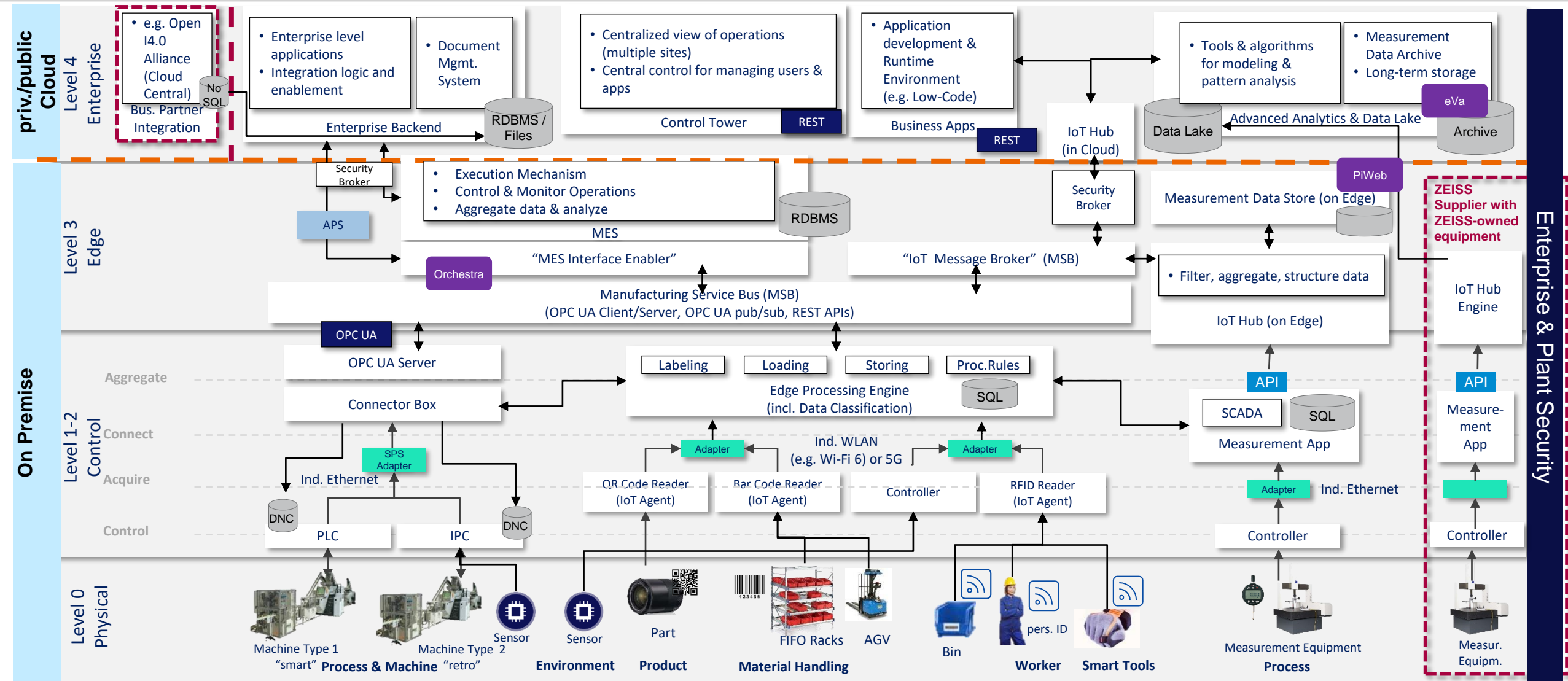
# SAP DMC@ZEISS Architecture



# ZEISS Target IoT Architecture – Functional Overview



7.4.2020 Version 1.01



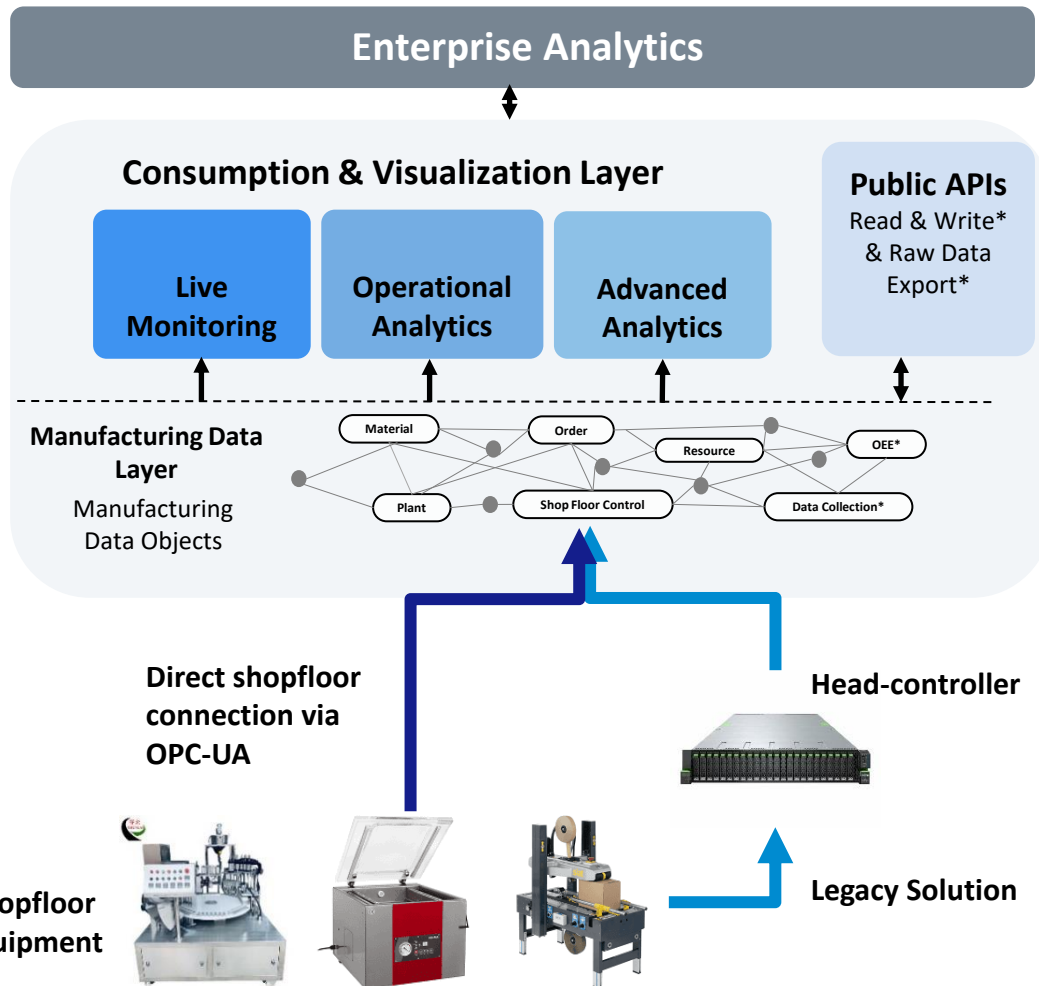


# Integrated Architecture

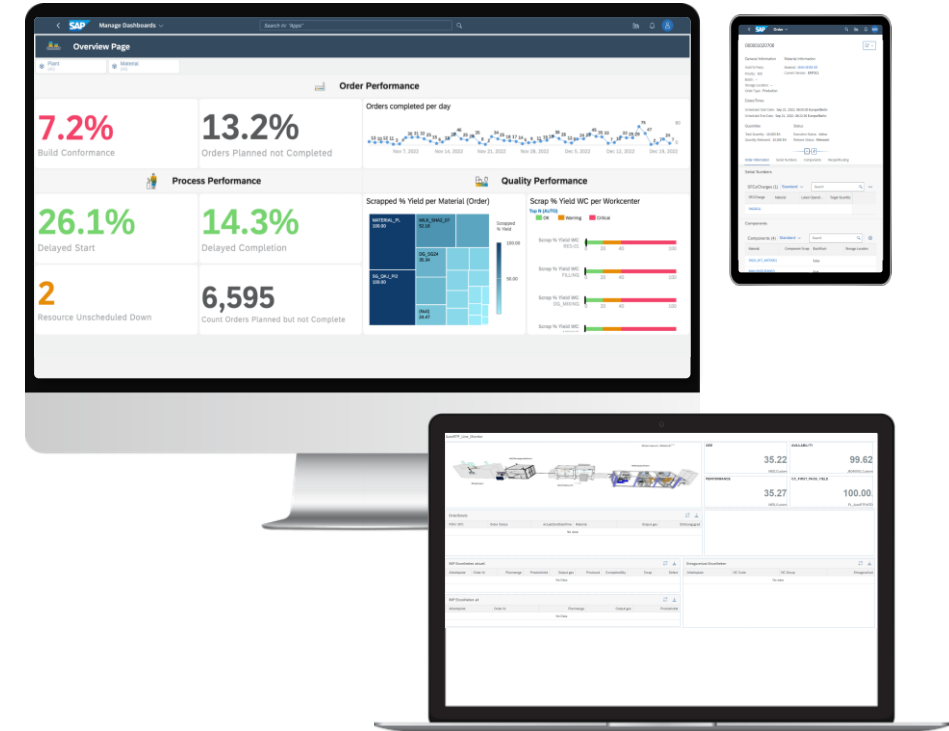
## From shop floor to top floor



SAP Digital Manufacturing  
for insights



**Manufacturing Analytics**





# SAP Digital Manufacturing Cloud

MES template processes for smart production at ZEISS

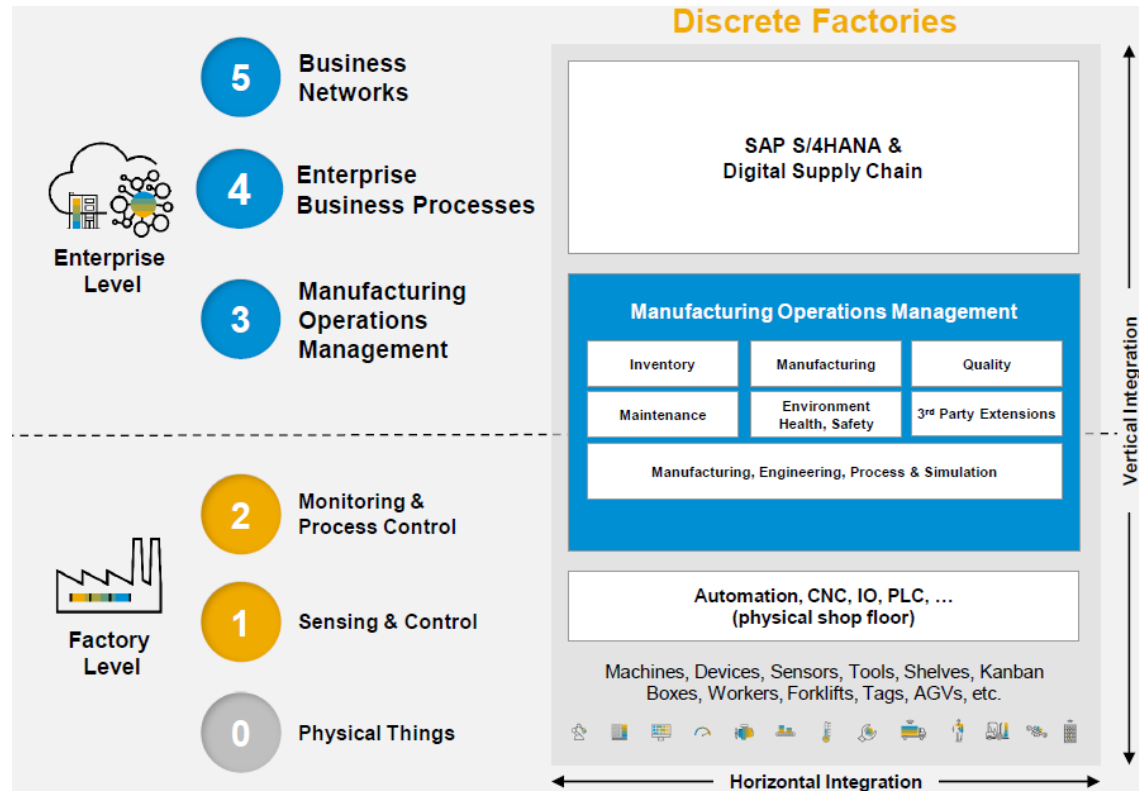
## Objective

- Based on a future-proof Industry 4.0 architecture, implement intelligently networked and automated value chains in order to sustainably improve business goals
- Uniform ME system in the ZEISS Group as an important part of such a future-proof architecture

## Sub-objectives

- All ZEISS divisions that purchase HTSJ have introduced a uniform ME system
- Implementation of comprehensive use cases, such as traceability and comprehensive planning tool
- Provision of a qualified system for use in a regulated environment

**SAP Digital Manufacturing Cloud (DMC) as the group-wide MES**



1. Independent SaaS software specializing in production process control (processing of the production order)
  2. MES is to be understood as a useful extension of SAP ERP.
  3. MES is strongly **integrated** with SAP ERP
  4. MES is not a **replacement** for SAP ERP.
  5. SAP DMCe (execution) is supplemented by visualization tools in the MES context.
- SAP DMCI = Manufacturing Insights
- SAP REO = Resource orchestration (advance planning and detailed scheduling)
- SAP Analytics Cloud („SAC“) -> currently not in scope

# Connected Smart Factory Transformation with SAP DMC

## Carl Zeiss AG

### Challenge

Bringing innovative products to market faster required modernizing manufacturing and paper-based documenting processes. ZEISS's highly regulated manufacturing environment relied strongly on two documentation types: Digital History Records (DHR) that validate relevant data points to complete compliance and Work Instruction documentation that stipulates the required steps to perform specific activities correctly. In the past, both were managed through a paper-based process, leading to environmental impact of paper use, as well as additional cost and effort for maintaining and verifying that all documents distributed throughout the factory remain up to date.

### Solution

To transform paper-based documentation of production processes into a fully automated system and improve visibility into every stage of manufacturing, ZEISS adopted Industry 4.0 practices that integrate Manufacturing Execution Systems (MES) in the cloud and smart manufacturing technologies. By creating three templates for different types of production with a focus on generalized functionality while giving scope for the unique needs of the plants, ZEISS enables a scaled rollout to an ambitious number of plants. With the multi-plant pilot program, ZEISS laid the foundation for a company-wide rollout of SAP Digital Manufacturing Cloud (DMC) across production lines.

### Outcome

With a successful DMC template, integrating process automation technologies such as smart sensors and embedded computing generate and send information that provides valuable insights into the status of machines and assets and also enables them to manage execution, e.g. via work instructions. With faster and more consistent insights, ZEISS manages productivity, quality, traceability, and order management issues more rapidly meeting its core objective – developing, producing, and distributing highly innovative solutions for industrial metrology and quality assurance, microscopy solutions for the life sciences and materials research, as well as medical technology solutions for diagnostics and treatment in ophthalmology and microsurgery.

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**~100%** Reduction of paper-based Digital History Record printing for first rollout

**>3x** Scaling of rollouts to additional plants (3 to 10 in parallel)

**~100%** Reduction of time required to verify version of printed work instructions for first rollout

# Challenges and Objectives

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## Global Challenges

- According to the WHO<sup>1</sup>, between 2015 and 2050, the proportion of the world's population over 60 years will nearly double from 12% to 22%, challenging countries to support their health and social systems.
- According to the NLM<sup>2</sup>, in 2022, 310 million major surgeries are performed each year, including 40+ million in the USA and 20 million in Europe.
- According to Today's Medical Developments<sup>3</sup>, with the medical device sector forecast to reach \$671 billion by 2027, manufacturing must comply with growing regulatory requirements.
- These growth factors and the low deployment cost of manufacturing execution systems (MES) are increasing industrial automation in manufacturing.

## Business Challenges

- In today's competitive and rapidly changing manufacturing environment, ZEISS needed to modernize in order to drive optimal performance.
- Faster, more consistent controls and insights were required to assess and resolve productivity, quality, traceability requirements, and order management issues.
- Operators lost time on outdated, highly administrative workflows with paper-based production and distribution of mandated compliance documentation.
- As a scientific research and optics icon, ZEISS needed to implement digital transformation and MES to meet its core business objectives: Driving the progress, efficiency and access to healthcare technology supporting doctors to improve their patients' quality of life.

# Project or Use Case Details

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ZEISS launched SAP Digital Manufacturing Cloud (DMC) via a templated rollout. Previously, its manufacturing environments relied on manual, shop-floor operations and machine processes, whereby producing and distributing documents, drawings, and everything from production data-points and workflow instructions to information searches were time-consuming and burdensome. Having paper-based documents, stored for more than 30 years, also opened ZEISS to potential legal challenges in records management. Now, with SAP DMC, ZEISS manages productivity, quality, traceability, and order management issues faster and with more consistent insights.

## Process Before

- Digital History Records (DHR) were previously maintained manually
- Each assembly/production step, test result, and assembly component record was manually documented on paper
- 30+ years of paper-based DHR records had accumulated

## Process After

SAP DMC saves time, ensures compliance, and is highly efficient:

- Provides a transparent single-source of data for product production and order fulfillment status
- Produces and distributes documentation digitally eliminating paper consumption and legal risks tied to archiving paper-based records
- Maintains machine specifications and work instructions based on change history and approval workflow
- Automates data collection from machines and operators that can measure environmental controls with precision

# Benefits and Outcomes

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## Business or Social

Prior to SAP DMC, access to real-time data was inhibited by 30+ years of archived paper records and manual production processes. For example, a production check-in required managers to walk the shop floor photographing documents used at different machines to verify versions, reprint and redistribute updates, and hand-sign final certification — a task requiring 30 minutes.

With its first templated rollout, SAP DMC delivers a best-in-class experience for all ZEISS departments providing:

- Improved transparency
- Standardized KPIs allowing harmonized reporting and comparison
- Better scalability, easier rollout to new lines, going from 3 to 10 lines
- 100% elimination of paper printing of DHRs for pilot plants

## IT\*

- A segment-independent overall MES solution
- Cloud strategy reduces infrastructure maintenance and upfront cost
- State-of-the-art solution with regular improvements published by SAP provides superior application management
- Enablement of new technologies, including machine learning and augmented reality

*\* IT benefits are required if you are using SAP Business Technology Platform products*



# SAP Digital Manufacturing Project

MES template processes for smart production at ZEISS

## Meditec AutoRTP (automated production)



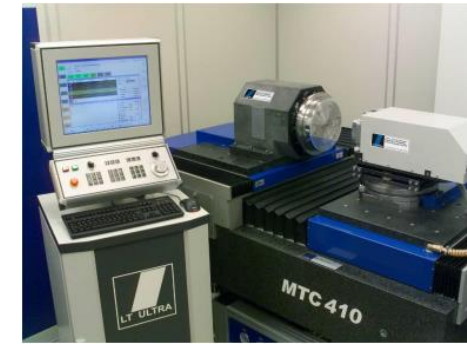
- Guided operation process
- Production order management
- electronic DHR

## Discrete assembly (assembly processes)



- Guided assembly processes
- Electronic data collection
- As built BOM & electronic DHR
- Qualification matrix

## SPU part automatized production (workshop production)



- Automatic data acquisition
- Guided manual data collection
- Guided operation process

**MES – Template main processes as basement for smooth DMC roll-out at ZEISS**

SAP

Digital Manufacturing Cloud  
“Order Execution” Example

# Impression – Manufacturing Order in SAP DMC from ZEISS ERP



SAP Order Plant: 1050 ( SPU\_OBERKOCHEN )

100006460039

Release Edit Copy Discard Hold Release Complete

Material: 000000000002120998 / ERP001 (Fuß)    Production Version:    Release Status: Released    Execution Status: Not in Execution    Base Quantity: 9 PC    Batch:    Inspection Lot: 020002134529

Order Information    Planned BOM    Planned Operations    SFCs    Custom Data    Order Schedule    Co-Product SFCs

### Operations

Operation	Work Center	Progress	UOM	Scheduled Start	Scheduled End	Operation Group
		<input type="text" value="0 of 9 PC"/>	PC	Jun 8, 2022, 12:29:57 AM	Jun 8, 2022, 12:29:57 AM	100006460039-000000-0100
		<input type="text" value="0 of 9 PC"/>	PC	Jun 13, 2022, 7:35:07 AM	Jun 13, 2022, 1:33:27 PM	100006460039-000000-0400
		<input type="text" value="0 of 9 PC"/>	PC	Jun 15, 2022, 7:30:00 AM	Jun 15, 2022, 7:30:00 AM	100006460039-000000-0601
		<input type="text" value="0 of 9 PC"/>	PC	Jun 15, 2022, 7:35:43 AM	Jun 15, 2022, 7:46:00 AM	100006460039-000000-0605

# Impression – Manage Orders / Progress



Orders



Items (69)

Order ID	Material / Version	Material Description	Release Status	Execution Status	Order Quantity	BOM / Version	Planned Start Date/Planned End Date	Quantity Progress Completed	Batch
100006460063			Released	Not In Execution	13 PC		Jul 1, 2022 – Aug 3, 2022	2 of 13 PC	
180000751690			Released	Not In Execution	2 PC		Jul 1, 2022 – Aug 3, 2022	0 of 2 PC	
180000751677			Released	Completed	9 PC		Jun 9, 2022 – Jul 8, 2022	9 of 9 PC	
100006459987			Released	Not In Execution	13 PC		May 24, 2022 – Jun 30, 2022	0 of 13 PC	
180000751675			Released	Completed	8 PC		Jun 7, 2022 – Jun 24, 2022	8 of 8 PC	
180000751672			Released	Completed	2 PC		Jun 7, 2022 – Jun 24, 2022	2 of 2 PC	
180000751689			Released	Completed	7 PC		Jun 9, 2022 – Jul 8, 2022	6 of 7 PC	
100006460061			Released	Completed	19 PC		Jun 9, 2022 – Jul 8, 2022	17 of 19 PC	
100006460060			Released	Completed	19 PC		Jun 9, 2022 – Jul 8, 2022	19 of 19 PC	
180000751688			Released	Not In Execution	7 PC		Jun 9, 2022 – Jul 8, 2022	0 of 7 PC	
100006460045			Released	Not In Execution	18 PC		Jun 9, 2022 – Jul 8, 2022	9 of 18 PC	
100006460044			Released	Active	16 PC		Jun 9, 2022 – Jun 29, 2022	0 of 16 PC	
100006460043			Released	Active	16 PC		Jun 9, 2022 – Jun 29, 2022	0 of 16 PC	
100006460042			Released	Active	16 PC		Jun 9, 2022 – Jul 7, 2022	0 of 16 PC	
100006460041			Released	Completed	14 PC		Jun 8, 2022 – Jun 24, 2022	10 of 14 PC	
100006460040			Released	Completed	11 PC		Jun 8, 2022 – Jun 24, 2022	11 of 11 PC	
100006460039			Released	Active	9 PC		Jun 8, 2022 – Jul 13, 2022	0 of 9 PC	
180000751673			Released	Completed	5 PC		Jun 10, 2022 – Jun 28, 2022	5 of 5 PC	
100006460038			Released	Active	19 PC		Jun 10, 2022 – Jun 28, 2022	0 of 19 PC	

SAP

Digital Manufacturing Cloud

“Worker Guidance”

# Impression – Operator Dashboard



SAP 1 seitiger Werker-POD Plant: 1050 (SPU\_OBERKOCHEN) 13:31:26

SFC: [ ] Work Center: \* 1594 Resource: 1594 Quantity: [ ] Go Clear

Start Unterbrechung Rückmeldung Alarm PSN-Split PSN-Merge

Work List (1)

Order	SFC	SFC Qty	Status	Resource	Priority	Order Scheduled Start Date
100006460039		9			1	Jun 8, 2022, 12:29:57 AM

Work Instruction List (1)

Work Instruction/Version	Description
TEST_PQ/01	Test PQ

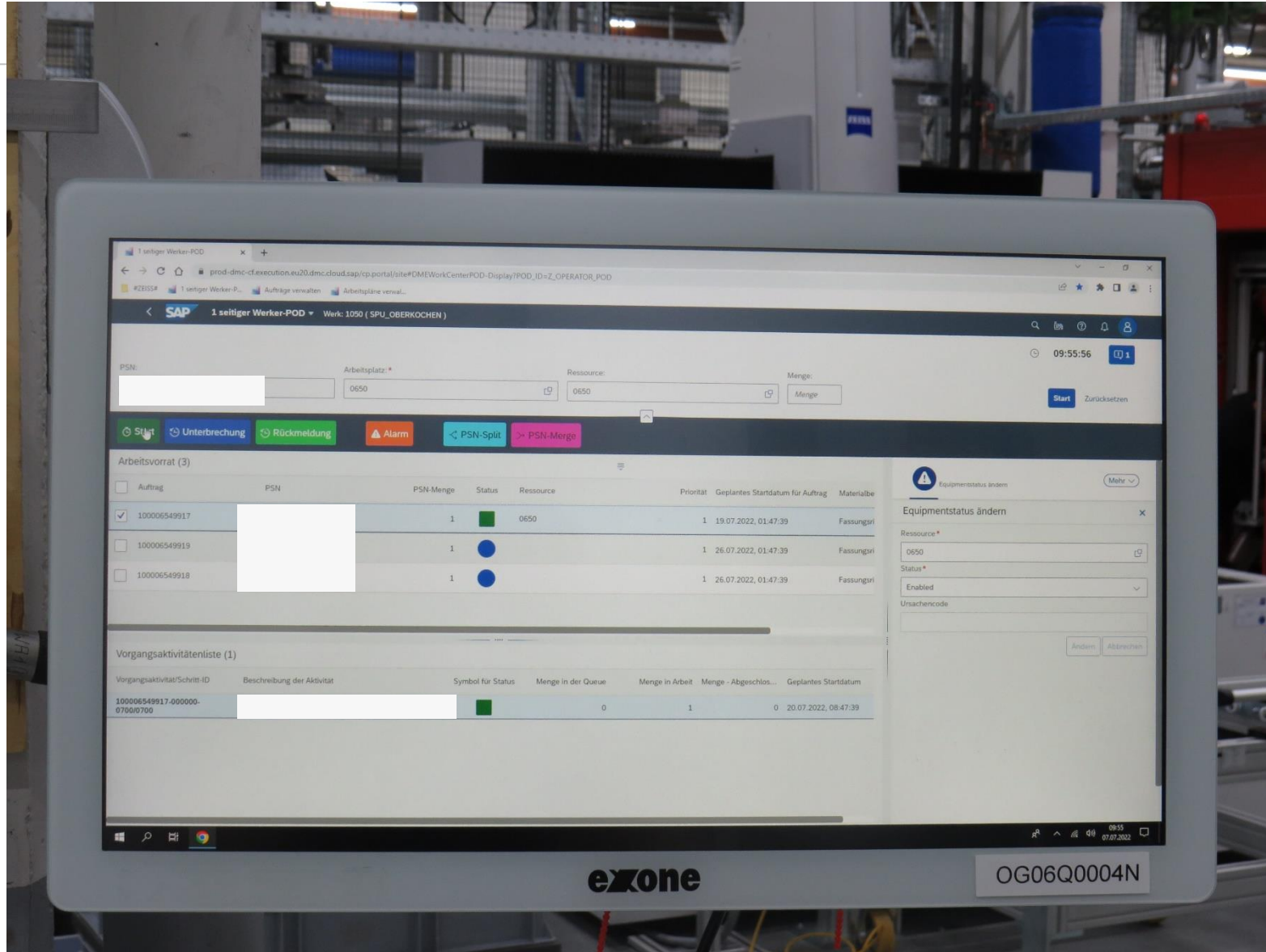
Operation Activity List (2)

Operation Activity/Step ID	Activity Description	Status Icon	Qty in Queue	Qty in Work	Qty Complete	Schedule
100006460039-000000-0400/0400			9	0	0	Jun 13, 2
100006460039-000000-0601/0601			0	0	0	Jun 15, 2

Navigation: Equipmentstatus ändern, Arbeitsanweisungsliste, Komponentenliste, Vorgabewerte, More

Bottom: Bachstein, Alexander 13:31

# Impression – Shop Floor Terminal





# DMC Standard „Line Monitor“ POD

## Line Monitor

Time Range:

Since Previous Day

Work Center:

0007 1900



**Production**

Quality

Asset

OEE

### Work Centers (2)

**0007**

Materialbeschaffung G&S 1000/FREM

Current Order:

No orders to execute

Orders completed:

0 of 0

**1900**

Material bereitstellung 6/1 WE

Current Order:

Multiple orders to execute

Orders completed:

3 of 6

# DMC Standard „Line Monitor“ POD

Work Centers / Dashboard

1900

Material bereitstellung 6/1 WE

🕒 17:05:26



Time Range:

Since Previous Day

Order:

100006716864

**Production**

Quality

Asset

OEE



## Order Summary

### Details

Order ID:  
100006716864

Order Category:  
Production

Material:

Material Description:  
Mounting ring

Release Status:  
Released

Execution Status:  
Not In Execution

### Order Schedule

Planned Start:  
Nov 14, 2022, 12:00 AM

Scheduled Start:  
Nov 10, 2022, 1:47 AM

Actual Start:  
Nov 17, 2022, 2:27 AM

Planned Completion:  
Dec 9, 2022, 12:00 AM

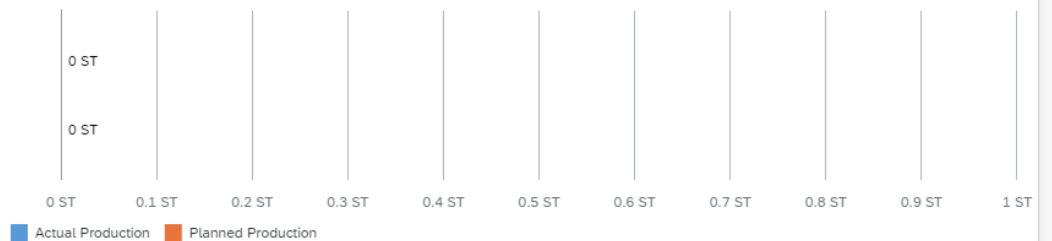
Scheduled Completion:  
Dec 8, 2022, 3:30 PM

Actual Completion:



## Production Progress

Goods Receipt Quantity



# ZEISS MES Template „Workshop Production“ POD



SFC:  Work Center: \*  Resource:  Quantity:

Go Clear

🕒 Anmelden
⏸ Unterbrechung
🔄 Rückmeldung
⚠ Alarm
↔ PSN-Split
➔ PSN-Merge

Work List (15) ⌵ ⚙

<input type="checkbox"/>	Order	SFC	SFC Qty	Status	Resource	Priority	Material Description	Custom:order:MATE...	Operation Scheduled Sta
<input type="checkbox"/>	100006377796		80	●		1			Oct 24, 2022, 9:58:51 AM
<input type="checkbox"/>	100006377826		9	●		1			Oct 24, 2022, 10:44:25 A
<input type="checkbox"/>	100006378096		1	■	1900	1			Oct 26, 2022, 10:21:11 A
<input type="checkbox"/>	100006362300		20	■	1900	1			Nov 4, 2022, 10:43:28 AI

Operation Activity List (0)

Operation Activity/Step ID	Activity Description	Status Icon	Qty in Queue	Qty in Work	Qty Complete	Operation Scheduled Start Da
No data						

⚠ Equipmentstatus ändern
👤 Arbeitsanweisungsliste
More ▾

**Change Equipment Status** ✕

Resource \*

Status \*

Reason Code

Status Change  Immediate

Change Cancel

# ZEISS MES Template „Assembly“ POD



SFC: 
 Work Center: 
 Resource:

**Work List (32)**

SFC	Status	Order	Material
	⬛	100006377970	000003025739000888
	🟢	100006377999	000003025739000888
	🟢	100006378001	000003025739000888
	🟢	Z_KATE12355	000000-2235-393
	⬛	100006378005	000003025739000888

**Operation Activity List (3)**

Operation Activity/Step ID	Status Icon	Qty in Queue	Qty in Work	Planned St
	✅	0	0	Oct 24, 20...
	✅	0	0	Oct 24, 20...
	🟢	0	1	Oct 24, 20...

**Data Collection List (1)**

Data Collection Group / Version	Group Description	Parameters
AP2110_PRUEFUNG/1		<input type="button" value="Collect"/>

# ZEISS MES Template „Automated Production“ POD



SFC:  Work Center:  Resource:

Go Clear

[Auftrag anmelden](#) [Produktion starten](#) [Pause](#) [Abschließen](#) [Work Instruction](#) [Data Collection](#) [Puffer nachladen](#) [Action](#)

[Back](#) Operation Activity List (1)

Activity Description	Qty in Queue	Qty in Work
	0	50

Work Instruction AUSSCHALTEN\_UND\_SICHERN/01 [Back](#)

[Image](#) [Text Instruction](#) [Image](#)



The image shows a close-up of a red emergency stop button on a yellow background. Above the button is a white label with the text "main switch inspection system". A red padlock is attached to the button, and a metal padlock is also visible in the foreground.

# ZEISS MES Template „Automated Production“ POD



ZEISS AUTOMIZED\_PROD\_POD Plant: 2015 ( MED\_JENA )

17:10:49

SFC:  Work Center: \* JE040001 Resource: JE040001

**Auftrag anmelden** **Produktion starten** **Pause** **Abschließen** **Work Instruction** **Data Collection** **Puffer nachladen** **Actions**

Go Clear

Back Operation Activity List (1)

Activity Description	Qty in Queue	Qty in Work
Kleben Kontaktglas	0	50

All Bins (3) Loaded Bins (3) Empty Bins (0)

Loaded Component: 00000000002449838 / ERP003  
Batch: [redacted]  
Loaded Quantity: 50

Load Unload

Loaded Component: 00000000002449843 / ERP002  
Batch: [redacted]  
Loaded Quantity: 700

Load Unload

Loaded Component: 00000000000488045 / ERP003  
Batch: [redacted]  
Loaded Quantity: 193.815

Load Unload

SAP

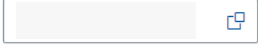
Digital Manufacturing Cloud

“eDHR” Example

# Product History Report



Print Open Product Genealogy Report



Order: 200342970  
Order Type: Production  
Customer Order:  
Customer:  
Planned Qty: 50 PC  
Actual Qty: 43 PC

Material / Version:  
Description:  
Planned Batch ID:  
Actual Start: November 11, 2022 at 7:29:02 PM GMT+01:00  
Actual End: November 11, 2022 at 7:42:41 PM GMT+01:00  
Planned Start: November 11, 2022 at 12:00:00 AM GMT+01:00  
Planned End: November 14, 2022 at 12:00:00 AM GMT+01:00

Production Version:  
Production Version Description:  
BOM / Version:  
Description:  
Routing / Version:  
Description:



Activity Log Data Collection Nonconformance Work Instructions Tool Custom Data

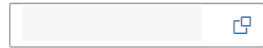
Operation Activities (79) <input type="text" value="Search"/>				Show All
Operation Activity	Version	Description	Resource	
VORGANG_L	A			>
VORGANG_L	A		JE040000	>
VORGANG_A	A		JE040000	>
VORGANG_B	A		JE040001	>
VORGANG_C	A		JE040002	>
VORGANG_B	A		JE040001	>
VORGANG_C	A		JE040002	>



# Product History Report



[Print](#) [Open Product Genealogy Report](#)



Order: 200342970  
 Order Type: Production  
 Customer Order:  
 Customer:  
 Planned Qty: 50 PC  
 Actual Qty: 43 PC

Material / Version:  
 Description:  
 Planned Batch ID:  
 Actual Start: November 11, 2022 at 7:29:02 PM GMT+01:00  
 Actual End: November 11, 2022 at 7:42:41 PM GMT+01:00  
 Planned Start: November 11, 2022 at 12:00:00 AM GMT+01:00  
 Planned End: November 14, 2022 at 12:00:00 AM GMT+01:00

Production Version:  
 Production Version Description:  
 BOM / Version:  
 Description:  
 Routing / Version:  
 Description:



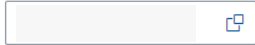
Activity Log **Data Collection** Nonconformance Work Instructions Tool Custom Data

DC Groups (35)										
DC Group	Description	Charge	Parameter Name	Collection Date	Measure	UOM	Measure Status	Files	Min/Max	Comments
			MASCHINE_PROGRAM	November 11, 2022 at 7:32:56 PM GMT+01:00	JE040001 - null		PASS			
			MACHINE_PROGRAM_DESCRIPTION	November 11, 2022 at 7:32:56 PM GMT+01:00	JE040001 - null		PASS			
			UV LEISTUNG IN TOLERANZ	November 11, 2022 at 7:33:06 PM GMT+01:00	JA		PASS			
			MASCHINE_PROGRAM	November 11, 2022 at 7:33:30 PM GMT+01:00	JE040002 - null		PASS			
			MACHINE_PROGRAM_DESCRIPTION	November 11, 2022 at 7:33:30 PM GMT+01:00	JE040002 - null		PASS			
			VERSCHMUTZUNG_VERPACKUNG	November 11, 2022 at 7:34:00 PM GMT+01:00	IO		PASS			
			VERPACKUNGSKONTROLLE	November 11, 2022 at 7:34:00 PM GMT+01:00	IO		PASS			

# Product History Report



[Print](#) [Open Product Genealogy Report](#)



Order: 200342970  
 Order Type: Production  
 Customer Order:  
 Customer:  
 Planned Qty: 50 PC  
 Actual Qty: 43 PC

Material / Version:  
 Description:  
 Planned Batch ID:  
 Actual Start: November 11, 2022 at 7:29:02 PM GMT+01:00  
 Actual End: November 11, 2022 at 7:42:41 PM GMT+01:00  
 Planned Start: November 11, 2022 at 12:00:00 AM GMT+01:00  
 Planned End: November 14, 2022 at 12:00:00 AM GMT+01:00

Production Version:  
 Production Version Description:  
 BOM / Version:  
 Description:  
 Routing / Version:  
 Description:



[Activity Log](#)
[Data Collection](#)
[Nonconformance](#)
[Work Instructions](#)
[Tool](#)
[Custom Data](#)

## Nonconformances (7)

Search

Resource	NC Code/Description	Comments	State	Files	Date/Time
<b>Operation Activity</b>					
JE040002			Open		November 11, 2022 at 7:41:01 PM GMT+01:00 >
			Open		November 11, 2022 at 7:41:04 PM GMT+01:00 >
			Open		November 11, 2022 at 7:41:07 PM GMT+01:00 >
<b>Operation Activity</b>					
JE040003			Open		November 11, 2022 at 7:41:54 PM GMT+01:00 >
			Open		November 11, 2022 at 7:41:59 PM GMT+01:00 >

# Product Genealogy Report



Network View

Print

Done

Plant: 2015    Planned Batch:     Planned Quantity: 50 PC    Data Collection:  
Order: 200342970    Actual Batch:     Actual Quantity: 0 PC    **35**



General Information    Components

Material / Version:

BOM / Version:

Routing / Version:

Description: Treatment Pack Intermediate Product S

## Components

### Components (14)

<input type="checkbox"/>	Sequence	BOM Components	Component Type	Alternate Item Group	Actual/Required Quantity	Operation Activity
<input type="checkbox"/>	10	<input type="checkbox"/>	Normal		<div style="width: 91%;"><span>41 PC / 45 PC</span></div>	<b>VORGANG_E</b> Description: Verpacken
<input type="checkbox"/>	100		Normal		<div style="width: 91%;"><span>41 PC / 45 PC</span></div>	<b>VORGANG_E</b> Description: Verpacken
<input type="checkbox"/>	110		Normal		<div style="width: 91%;"><span>41 PC / 45 PC</span></div>	<b>VORGANG_E</b> Description: Verpacken
<input type="checkbox"/>	120		Normal		<div style="width: 89%;"><span>40 PC / 45 PC</span></div>	<b>VORGANG_E</b> Description: Verpacken
<input type="checkbox"/>	130		Normal		<div style="width: 91%;"><span>41 PC / 45 PC</span></div>	<b>VORGANG_E</b> Description: Verpacken
<input type="checkbox"/>	140		Normal		<div style="width: 80%;"><span>81 PC / 90 PC</span></div>	<b>VORGANG_E</b> Description: Verpacken

# Product Genealogy Report



Network View **Print**

General Information **Components**

### Components (14)

<input type="checkbox"/>	Sequence	BOM Components	Component Type	Alternate Item Group	Actual/Required Quantity	Operation Activity
<input checked="" type="checkbox"/>	10		Normal		<div style="width: 90%;"><div style="width: 90%;">41 PC / 45 PC</div></div>	VORGANG_E Description: Verpacken
<input type="checkbox"/>	100		Normal		<div style="width: 90%;"><div style="width: 90%;">41 PC / 45 PC</div></div>	VORGANG_E Description: Verpacken
<input type="checkbox"/>	110		Normal		<div style="width: 90%;"><div style="width: 90%;">41 PC / 45 PC</div></div>	VORGANG_E Description: Verpacken
<input type="checkbox"/>	120		Normal		<div style="width: 90%;"><div style="width: 80%;">40 PC / 45 PC</div></div>	VORGANG_E Description: Verpacken
<input type="checkbox"/>	130		Normal		<div style="width: 90%;"><div style="width: 90%;">41 PC / 45 PC</div></div>	VORGANG_E Description: Verpacken
<input type="checkbox"/>	140		Normal		<div style="width: 90%;"><div style="width: 90%;">81 PC / 90 PC</div></div>	VORGANG_E Description: Verpacken
<input type="checkbox"/>	20		Normal		<div style="width: 100%;"><div style="width: 100%;">0.250 G / 0.250 G</div></div>	VORGANG_B Description: Kleben Kontaktglas
<input type="checkbox"/>	30		Normal		<div style="width: 100%;"><div style="width: 100%;">50 PC / 50 PC</div></div>	VORGANG_B Description: Kleben Kontaktglas
<input type="checkbox"/>	40		Normal		<div style="width: 100%;"><div style="width: 100%;">50 PC / 50 PC</div></div>	VORGANG_B Description: Kleben Kontaktglas

### Component Details

Assembled  Removed

---

**00000000002257618 / ERP002**

<b>General Info</b> Actual Component: <span style="background-color: #eee; padding: 2px;"> </span> Version: <span style="background-color: #eee; padding: 2px;"> </span> Component Description: <span style="background-color: #eee; padding: 2px;"> </span> Actual Batch: <span style="background-color: #eee; padding: 2px;"> </span> Actual Quantity: 1 PC Required Quantity: 45 PC Actual Operation Activity: <span style="background-color: #eee; padding: 2px;"> </span> Operation Description: <span style="background-color: #eee; padding: 2px;"> </span> Status: Active Assembly Date: Nov 11, 2022, 19:36:35 User: dmc_services_user	<b>Assembly Data</b>          
--	--

---

<b>General Info</b> Actual Component: <span style="background-color: #eee; padding: 2px;"> </span> Version: <span style="background-color: #eee; padding: 2px;"> </span> Component Description: <span style="background-color: #eee; padding: 2px;"> </span>	<b>Assembly Data</b>          
---	--

SAP

Digital Manufacturing Cloud  
“Work instruction’s” Example

SFC:

Work Center:\*

Resource:




Go Clear

Auftrag anmelden

Produktion starten

Pause

Abschließen

Work Instruction

Data Collection

Puffer nachladen

Actions


Back Operation Activity List (1)

Activity Description	Qty in Queue	Qty in Work
	50	0


Work Instruction WI\_VERHALTEN\_REINRAUM/01 Back

PDF File


WorkInstructionElementBO:WorkInstructionB... 1 / 18 | 65% | [Icons]



1



2



3

Prozess Nr.		Titel		Carl Zeiss Meditec		Seite	
						1 / 1	
<p><b>AN:</b> (bitte Empfänger der Mitteilung eintragen; Vor- und Zuname oder Organigrammposition): C. Zarnojancyk, J. Findeisen, P. Undisz</p>							
Thema/Betreff:							
Kategorie (OMS, LMS, EMS, NMS, Produktkategorie)	Stellen (OSR, OMF, LMR, LHF, EMR, EHF, NMR, NMF, DMR, DHF)	Dok-art entsprechen g OMS-Abkürzungs-typ	Neues Dokument	Angaben zum Dokument	Ersetzt alten Dokumententitel	Freigabedatum	Verbindliche Umsetzungsmaßnahmen beim Empfänger
EMS	EMR	Manual					
<p>DOORS Angaben: --- Module Path: --- Baseline Version: ---</p>				<p>Module Name: ---</p>			
<p>Dokumentenfreigabe entsprechend Dok-Plan, soweit nicht auf dem Dokument schon abgezeichnet</p>				<p>Freigabe Änderungsmitteilung durch die für die Kategorie befugte Person geprüft &amp; freigegeben:</p>			
Name/Unterschrift/Datum		Name/Unterschrift/Datum		Name/Unterschrift/Datum		Name/Unterschrift/Datum	

SFC:  Work Center:\* JE040001 Resource: JE040001 Go Clear

Auftrag anmelden Produktion starten Pause Abschließen Work Instruction Data Collection Puffer nachladen Actions

Back Operation Activity List (1)

Activity Description	Qty in Queue	Qty in Work
	50	0

Work Instruction BEDIENUNG/01 Back

Text Instruction Image Text Instruction Text Instruction Image Text Instruction Image Text Instruction Text Instruction

Einschalten

Schalten Sie die Stromversorgung mit dem Hauptschalter ein. Achten Sie darauf, dass der Not-Halt- Knopf gelöst ist. Schalten Sie die USV an. Dazu drücken Sie den On Knopf ca. 3 Sekunden lang.  
Nach wenigen Sekunden hören Sie dann einen Signalton. Der Rechner fährt hoch, das Prüfprogramm wird automatisch gestartet.  
Wichtig: Testen Sie nach dem Einschalten die Funktion der Sicherheitseinrichtungen, wie in Abschnitt 7.4 beschrieben!

Image

SFC:  Work Center: \*  Resource:  Go Clear

Auftrag anmelden Produktion starten Pause Abschließen Work Instruction Data Collection Puffer nachladen Actions

Back Operation Activity List (1)

Activity Description	Qty in Queue	Qty in Work
	50	0

Work Instruction BEDIENUNG/01 Back

Text Instruction Image Text Instruction Text Instruction Image Text Instruction Image Text Instruction Text Instruction

**Text Instruction**

Verhalten bei Not-Halt

Drücken des Not-Halt-Knopfes löst den Not-Halt-Zustand aus, siehe auch Abschnitt 6.2. Nach einem Not-Halt muss die Freigabe über den Freigabetaster erteilt werden.  
Achtung! Der NOT-HALT schaltet nicht die Stromversorgung des Vision-Systems ab, sondern sorgt lediglich für ein lastfreies Anhalten der Bänder.

**Text Instruction**

Verhalten beim Öffnen einer Tür des Systems

Beim Öffnen einer Servicetür wird der Sicherheitszustand ausgelöst. Siehe Abschnitt 6.3.

**Verhalten bei Stromausfall**

Bei einem kurzzeitigen Stromausfall versorgt die USV den PC weiterhin mit Strom. Bei längerem Ausfall wird nach einer gewissen Zeit (einer Minute) der Rechner heruntergefahren.

**Image**



ZEISS Z\_ASSEMBLY\_V3 Plant: 1030 ( MED\_OBERKOCHEN )

SFC:  Work C  
AP 2

[Start](#) [Unterbrechung](#) [Rückmeldung](#)

Work List (32)

SFC	Status	Order
	◆	100006377970
	■	100006377999
	●	100006378001
	●	Z_KATE12355
	◆	100006378005

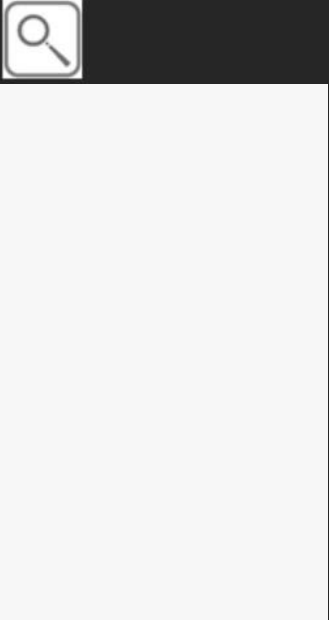

Operation Activity List (3)

Operation Activity/Step ID	Status Icon	Qty in
	✓	
	✓	
	■	

Work Instruction AP2115\_TRAGSTRUKTUR\_MONTAGE/1 [Back](#)

[Image](#) [Image](#) [Image](#) [Image](#) [Image](#) [Image](#) [Image](#) [Image](#) [Image](#) [Image](#) [Image](#)

### MS 1 Info – Grundeinstellungen des Kollimators



# ConnectedSmartFactory Ready for the future?

Roadmap to the future

### Continue Architecture

### Continue MSB

### Enable DMC@ZEISS

### SAP DM Rollouts in 2024

**AutoRTP**

- Geführte Unterstützungsprozesse
- Auftragsmanagement
- Elektronischer DMR

**Serien Montage**

- Geführte Montageprozesse
- Elektronische Datenverarbeitung
- Verknüpfung von B. elektronischer DMR
- Qualifizierungsprozesse

**(Teil-) Automatisierte Produktion**

- Automatische Datenverarbeitung
- Bei Bedarf manuelle Datenverarbeitung
- Geführte Unterstützungsprozesse

### Machine Connection

Beispiel SPU / Lehrwerkstatt Maschinen Anbindung:

- Siemens
- GF
- SpitzTech
- Metzler
- DMB
- APL
- ST, OPC-UA, MQTT
- IO via ETHERCAT Systemen to OPC-UA

### IQS Measurement connection to customers

### Enable Self Service Analytics

### ZEISS Track & Trace

### Increase HW basket

NEW VERSION Q3 2021

### Increase Sensor Portfolio

## The SAP Innovation Awards recognizes

*Carl Zeiss AG*

---

Winner in the 2023 SAP Innovation Awards program for their entry

*Connected Smart Factory Transformation Worldwide*

*Leveraging SAP Digital Manufacturing Cloud (DMC)*

---

You have demonstrated the use of technology to transform your business in innovative ways!

12 APRIL 2023

**Date**



---

Scott Russell  
Head of Customer Success,  
Executive Board Member





Seeing beyond