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# PI Monitoring using PI

Bernd Sessler, Gerd Fromm, Philipp Sutter, Pascal Nass, Marcin Guth

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# Agenda

- Presenters
- About Roche
- Business Challenge
- Monitoring a PI System with PI
- Application within Roche
- Result Obtained and Business Impact
- Next Steps, future Plans

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# Presenters





## Bernd Sessler

Project function: Business Product Owner



## Gerd Fromm

Project function: IT Product Manager



## Philipp Sutter

Project function: PI Senior Expert



## Pascal Nass

Project function: Coordination & Concept development



## Marcin Guth

Project function: Squad Lead PI Enhancements



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# About Roche

AVEVA

# Roche at a glance

*Maintaining a long-term orientation*



**1896**

Founded in Basel  
Family still holds  
majority stake



Reliable partner  
during Corona  
pandemic



Leader in  
Diagnostics  
and Pharma



**#1**

R&D investor  
in healthcare

**101,465**

Employees  
worldwide

**28,900,000**

people treated with our  
medicines in 2020



**Lasting**

32 medicines on the  
WHO List of  
Essential Medicines



**... and Sustainable**

most sustainable healthcare company  
in the Dow Jones Sustainability Indices

**23.4bn**

tests conducted with  
our Diagnostics  
products in 2020



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# Business Challenge

**AVEVA**



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# Business Challenge

## Stated by Business Product Owner Bernd Sessler

- 25 PI Systems to be managed to be supported by the new global support team
- Many different local monitoring solutions in place
  - Causing high license costs
  - Each solution needs specific training
  - Impossible to handle by global support team due to lack of harmonisation
- No global monitoring display possible
- Difficult to compare performance of the different systems
- Company goal: reduction of complexity and number of systems
- Cost reduction





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# Monitoring a PI System with PI



# PI System Monitoring (PSM)

## Traditional Approach

- PI system with all its machines as a data source
- Available Interfaces:
  - Perfmon (RAM/Disk/Processor, PI specific information)
  - Ping (network)
  - TCP response (PI Vision)
  - SNMP (time synchronization)
- Data collected in PI DA

## Newer Ideas

- System hierarchy modeled in PI AF
- PI Vision displays
- Notifications sent to operation support team

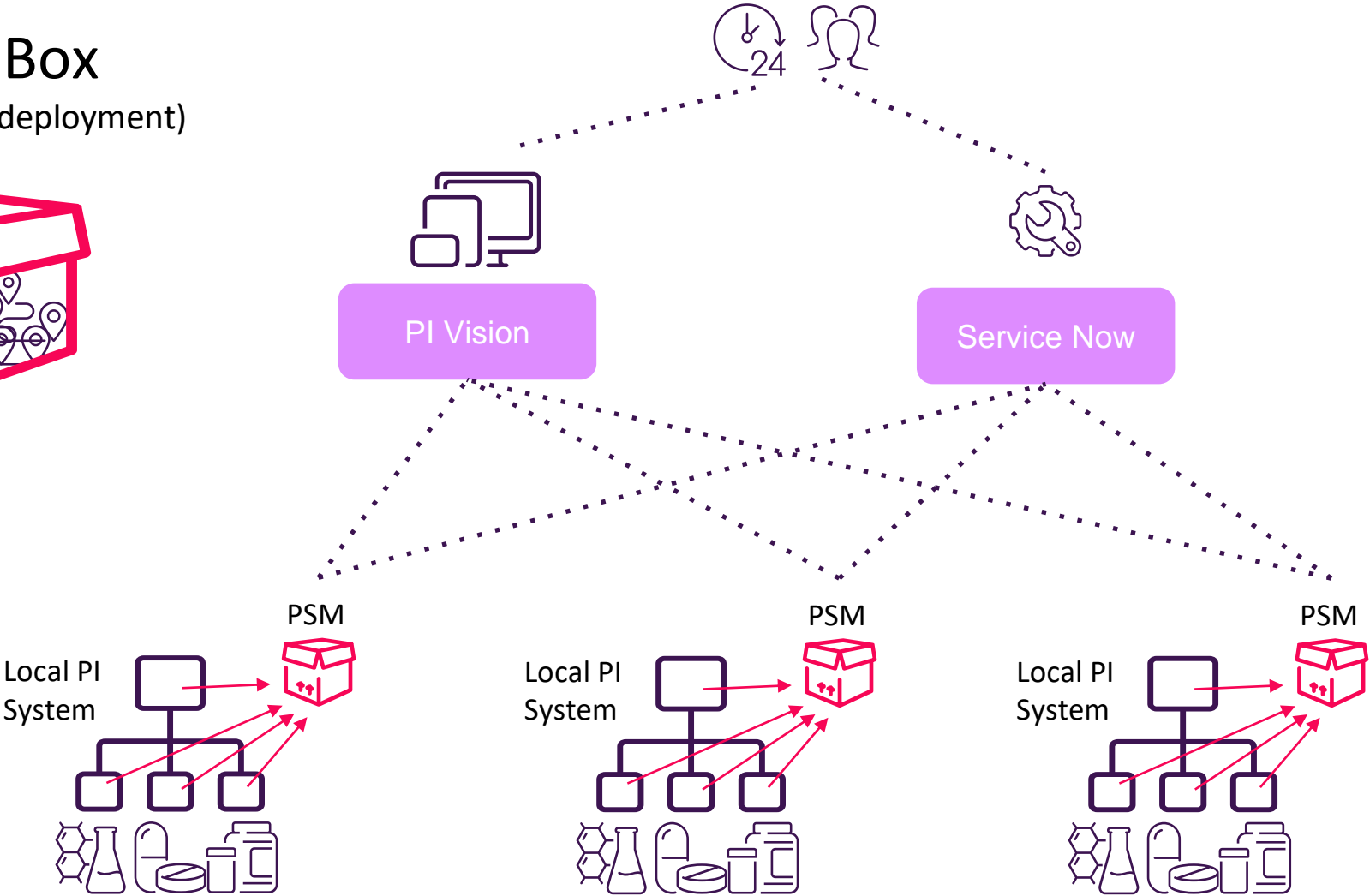
## Our Approach

- Automate everything
- Based on standard PI installation in one box
- Templates
- Automatic tag creation
- Automatic hierarchy creation
- Automatic interface node detection

# PSM Architecture

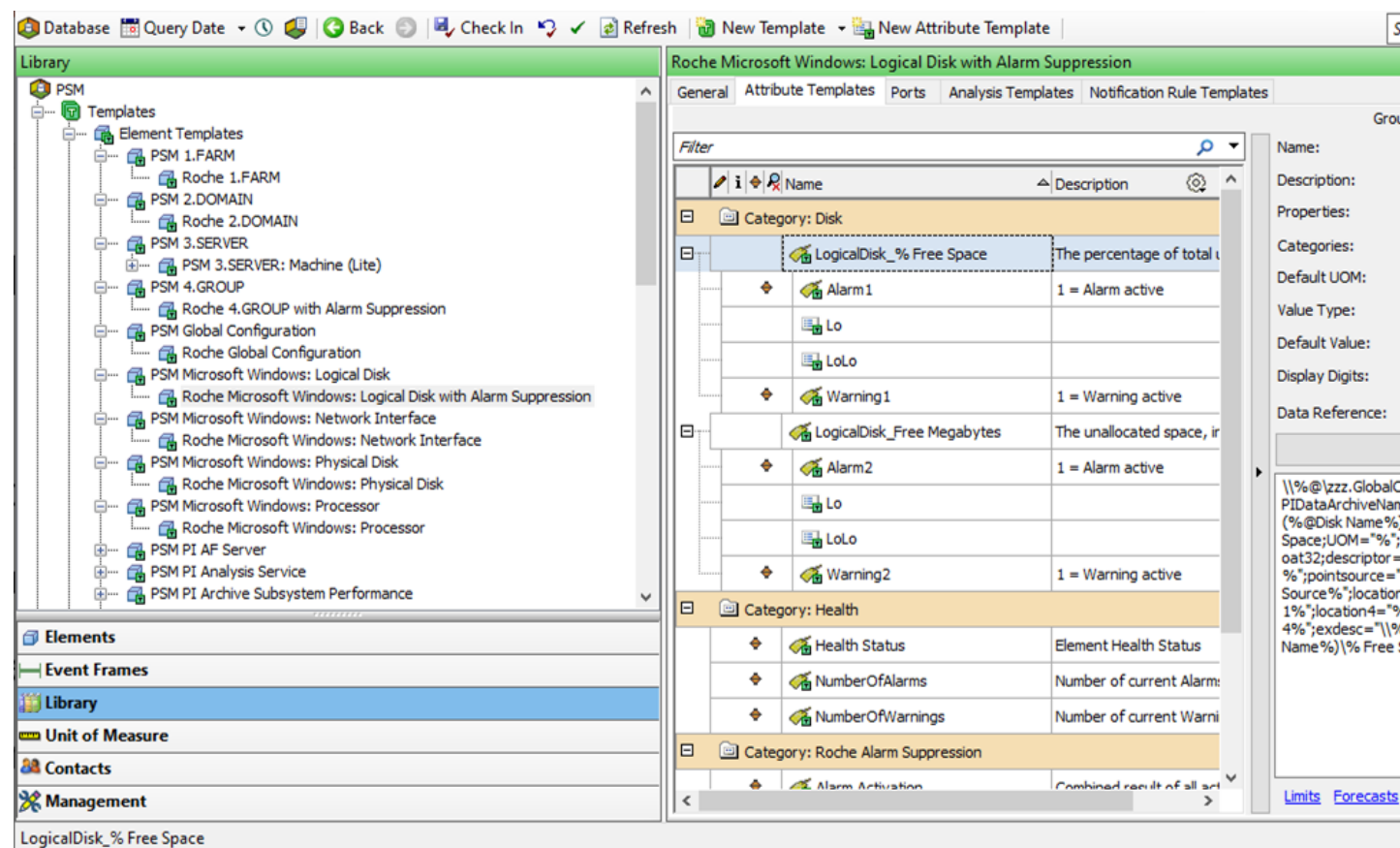
## The PSM Box

(small PI Server deployment)



# PSM: Templates and Structure

- Baseline: PSM templates from OSIsoft
- Template changes:
  - Alarm Suppression incl. End time
  - Roll-up of alarms and warnings
  - Configurable Alarm delays
  - Automatic Ticket creation in ServiceNow
- Additional templates
  - Watchdog monitoring
  - Time Sync
- All templates contain
  - automatic tag creation
  - automatic element naming



The screenshot displays the OSIsoft PSM software interface. On the left, a 'Library' pane shows a hierarchical tree of templates under 'PSM' > 'Templates'. The selected template is 'Roche Microsoft Windows: Logical Disk with Alarm Suppression'. The main window shows the configuration for this template, including a table of elements and their descriptions.

Category	Name	Description
Category: Disk	LogicalDisk_% Free Space	The percentage of total
	Alarm 1	1 = Alarm active
	Lo	
	LoLo	
	Warning 1	1 = Warning active
Category: Health	LogicalDisk_Free Megabytes	The unallocated space, in
	Alarm2	1 = Alarm active
	Lo	
	LoLo	
	Warning2	1 = Warning active
	Health Status	Element Health Status
	NumberOfAlarms	Number of current Alarm:
	NumberOfWarnings	Number of current Warni
Category: Roche Alarm Suppression	Alarm Activation	Combined result of all act

# PSM: Create instances via scripts

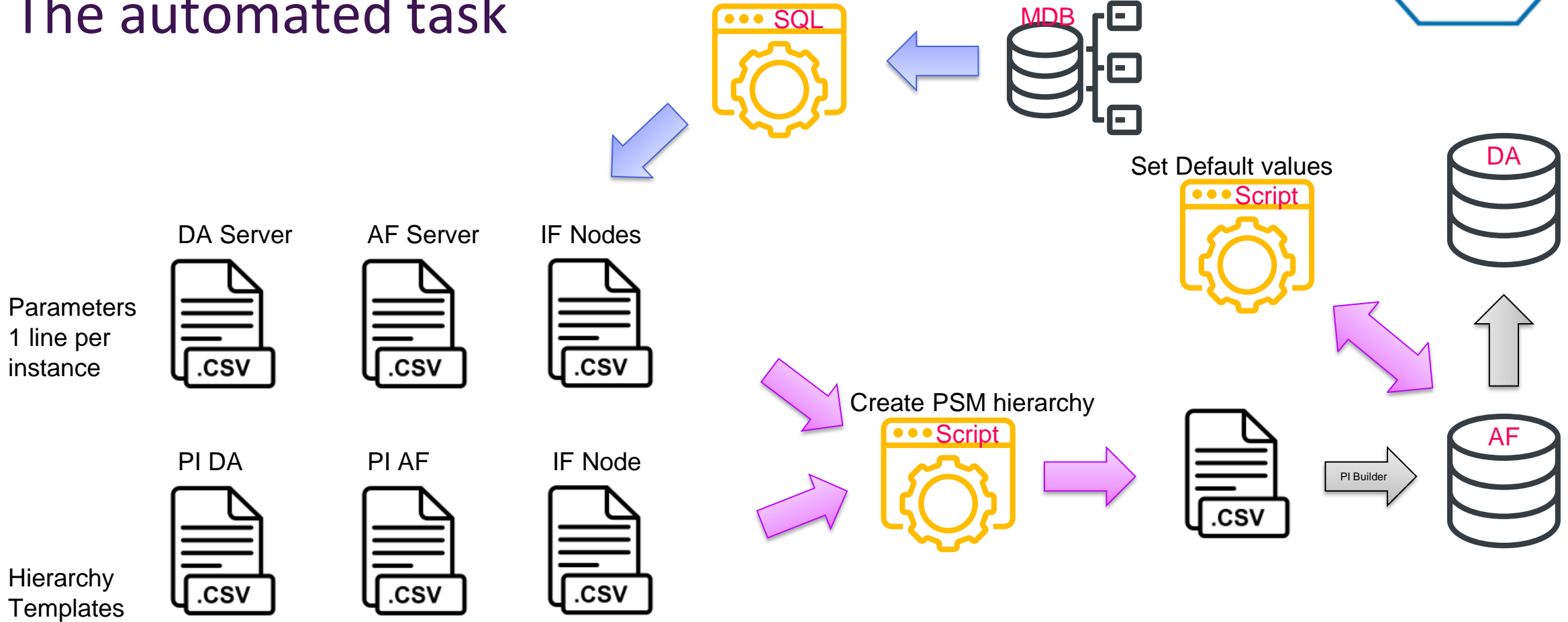
## Problem:

- Each machine to be modelled contains several levels
  - Processor
  - Disks
  - RAM
  - Interfaces
  - Etc.
- We have a real lot of Interfaces and Interface Nodes
  - Hundreds of interfaces
  - Dozens of interface nodes
- Default values on PI tags
  - Not written during automatic tag creation via template instantiation

## Solution:

- Create instances via scripts based on element hierarchy templates (CSV files)
  - Windows machine
  - PI DA Server
  - PI AF Server
  - PI Vision Server
  - Etc.
- Reads interface nodes from MDB automatically
  - Create IF nodes and corresponding interfaces
- Script to set default values even on PI tags
  - Read template default value and write to tags

# The automated task





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# Application within Roche

**AVEVA**

# Site Implementation

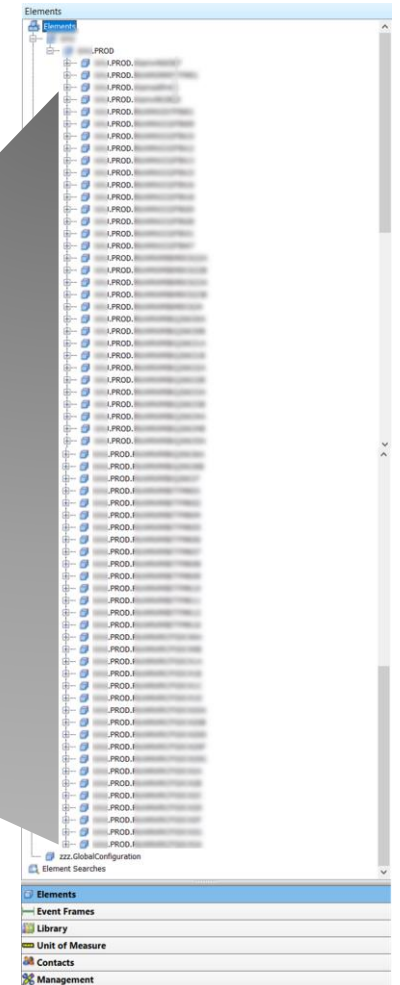
- Using the Roche scripts, a standard PI installation is completed with Groups, Identities and mapping in 2 hours
  - Harmonization & Standardization
  - Major time gain
  - No human errors
- Installation of PSM was treated as a small PI Server deployment.
  - PI Asset Framework
  - PI Data archive
  - PI Ping Interface
  - PI Perfmon Interface
  - PI SNMP Trap Interface
  - PI TCP response Interface

Standard PI System



# Site Creation

- The manual creation of a site with 92 Interfaces on 63 nodes would take ~ 70 hrs
  - Create the first computer with windows structure would take ~ 1 hr
  - using the PI Builder is ~ 30 mins per computer (63 \* 30 ) ~ 31 hrs
  - Creation of PI system is ~ 30 mins per computer (63 \* 30 ) ~ 31 hrs
  - Creation of PI DA, AF and Web is ~ 1 hr per server (3 \* 1) ~ 3 hrs
- Using the scripts, a site with 92 Interfaces on 63 nodes took ~ 30 mins
  - Time needed was less than a minute (18.9 seconds) to create the templates
  - Uploading within PI AF took about 21 mins
  - Major time gain (14000% / site)
  - No human errors



# PI Vision : Sites supervision





# PI Vision : Site level information

OSIsoft PI Vision

PSM\_Server\_Details\_Level\_3 (read-only) Asset: SITE

New Display

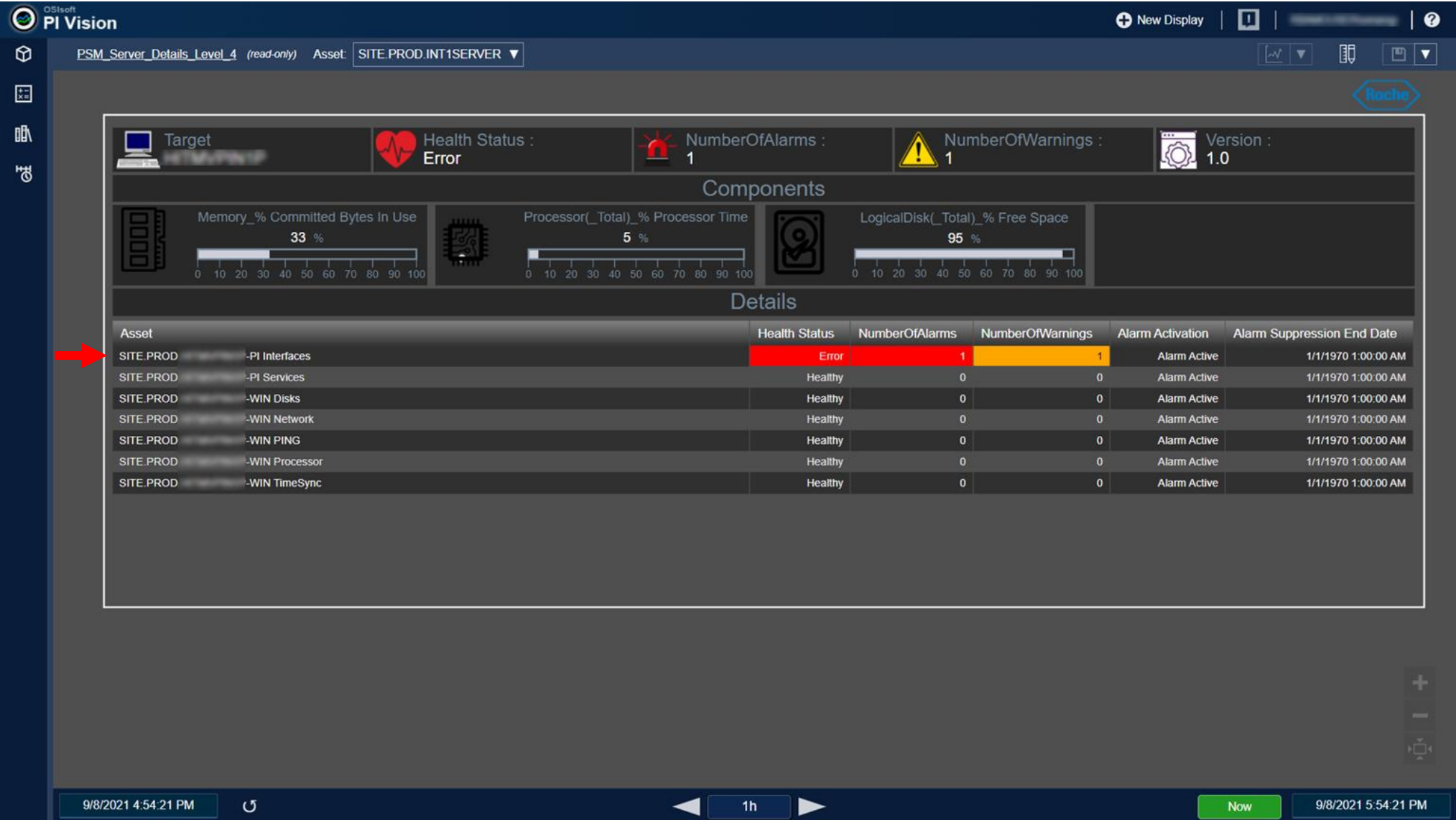
Roche

Name : SITE Health Status : Error NumberOfAlarms : 5 NumberOfWarnings : 4 Version : 1.0

### Components

Asset	Health Status	NumberOfAlarms	NumberOfWarnings	Alarm Activation	Alarm Suppression End Date
SITE.PROD.AFSSERVER	Warning	0	1	Alarm Active	1/1/1970 1:00:00 AM
SITE.PROD.	Healthy	0	0	Alarm Active	1/1/1970 1:00:00 AM
SITE.PROD.	Warning	0	1	Alarm Active	8/16/2021 8:59:47 AM
SITE.PROD.	Healthy	0	0	Alarm Active	1/1/1970 1:00:00 AM
SITE.PROD.	Healthy	0	0	Alarm Active	1/1/1970 1:00:00 AM
SITE.PROD.	Healthy	0	0	Alarm Active	1/1/1970 1:00:00 AM
SITE.PROD.	Healthy	0	0	Alarm Active	1/1/1970 1:00:00 AM
SITE.PROD.INT1SERVER	Error	1	1	Alarm Active	8/31/2021 10:26:32 AM
SITE.PROD.INT2SERVER	Error	4	1	Alarm Active	8/31/2021 10:29:04 AM
SITE.PROD.MONSERVER	Healthy	0	0	Alarm Active	1/1/1970 1:00:00 AM
SITE.PROD.WEBSERVER	Healthy	0	0	Alarm Active	1/1/1970 1:00:00 AM

# PI Vision : Server selection



The screenshot displays the PI Vision interface for a server named 'SITE.PROD.INT1SERVER'. The top status bar shows the target name, health status (Error), number of alarms (1), number of warnings (1), and version (1.0). Below this, three progress bars show system metrics: Memory (33%), Processor (5%), and Logical Disk (95% free space). A 'Details' table lists various components and their health status. A red arrow points to the first row of the table, which is highlighted in red.

Asset	Health Status	NumberOfAlarms	NumberOfWarnings	Alarm Activation	Alarm Suppression End Date
SITE.PROD -PI Interfaces	Error	1	1	Alarm Active	1/1/1970 1:00:00 AM
SITE.PROD -PI Services	Healthy	0	0	Alarm Active	1/1/1970 1:00:00 AM
SITE.PROD -WIN Disks	Healthy	0	0	Alarm Active	1/1/1970 1:00:00 AM
SITE.PROD -WIN Network	Healthy	0	0	Alarm Active	1/1/1970 1:00:00 AM
SITE.PROD -WIN PING	Healthy	0	0	Alarm Active	1/1/1970 1:00:00 AM
SITE.PROD -WIN Processor	Healthy	0	0	Alarm Active	1/1/1970 1:00:00 AM
SITE.PROD -WIN TimeSync	Healthy	0	0	Alarm Active	1/1/1970 1:00:00 AM



# PI Vision : Diving into the issue(s)

The screenshot shows the OSIsoft PI Vision interface. At the top, the title bar reads "OSIsoft PI Vision" and "PSM\_Server\_Details\_Level\_5 (read-only) Asset: SITE.PROD -PI Interfaces". The main content area displays a summary card with the following information:

- Health Status : **Error** (indicated by a red heart icon)
- NumberOfAlarms : **1** (indicated by a red bell icon)
- NumberOfWarnings : **1** (indicated by a yellow warning triangle icon)
- Version : **1.0** (indicated by a gear icon)

Below the summary card is a table titled "Details" with the following columns: Asset, Health Status, NumberOfAlarms, NumberOfWarnings, Alarm Activation, and Alarm Suppression End Date. Two red arrows point to the first two rows of the table.

Asset	Health Status	NumberOfAlarms	NumberOfWarnings	Alarm Activation	Alarm Suppression End Date
PROD. -PI Interfaces - PI Buffer Subsystem	Warning	0	1	Alarm Active	1/1/1970 1:00:00 AM
PROD. -PI Interfaces - PI Interface PI-opcint1 OPCDA1	Healthy	0	0	Alarm Active	1/1/1970 1:00:00 AM
PROD. -PI Interfaces - PI Interface PI-opcint2 UTIL	Error	1	0	Alarm Active	1/1/1970 1:00:00 AM
PROD. -PI Interfaces - PI Interface PI-opcint3 BAS	Healthy	0	0	Alarm Active	1/1/1970 1:00:00 AM
PROD. -PI Interfaces - PI Interface PI-opcint4 ECMS	Healthy	0	0	Alarm Active	1/1/1970 1:00:00 AM



# PI Vision : Maintenance mode

The screenshot displays the PI Vision interface for 'PSM\_Server\_Details\_Level\_3 (read-only) Asset'. The top summary bar shows:

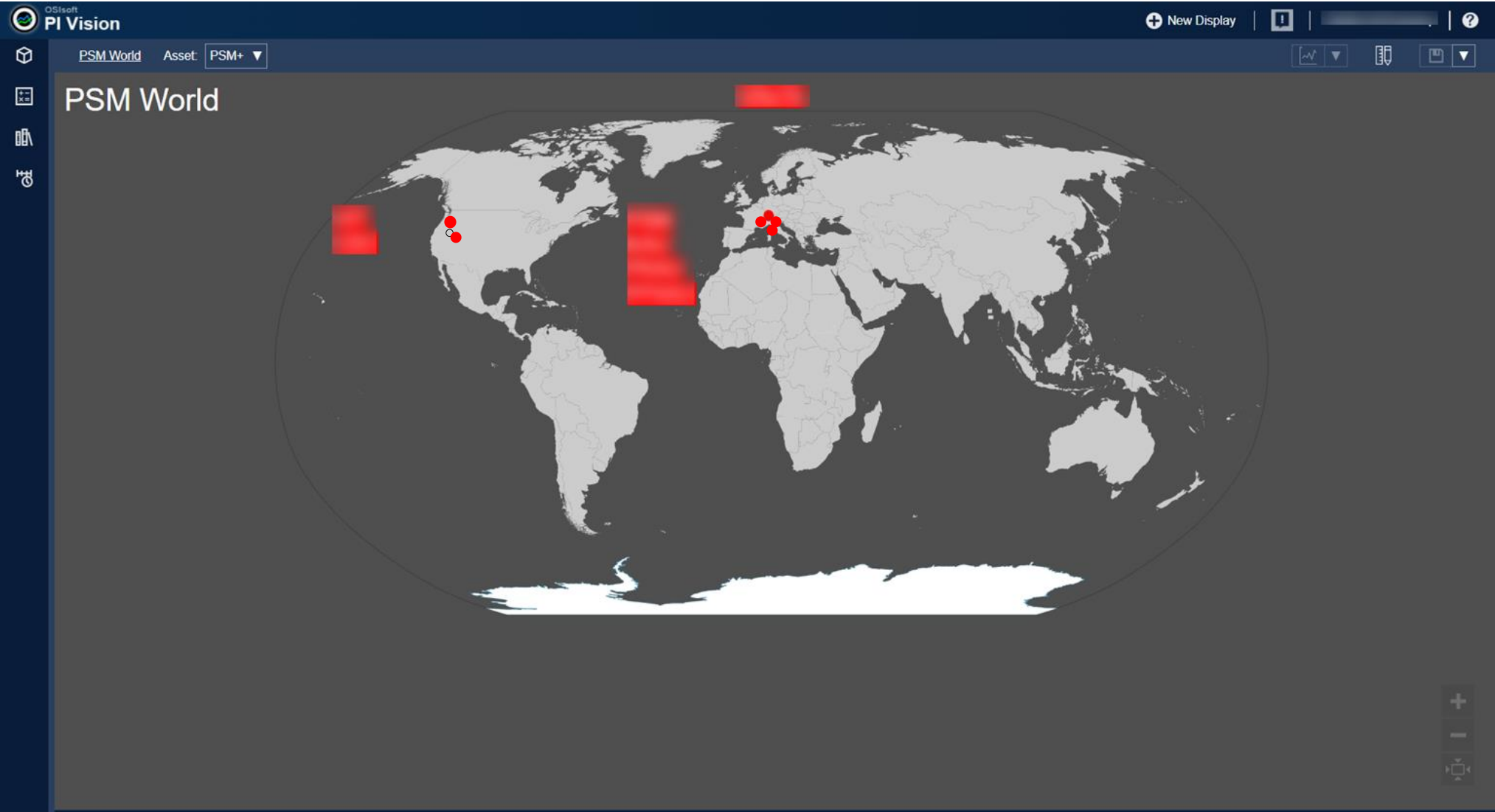
- Name : [blurred]
- Health Status : Error
- NumberOfAlarms : 4
- NumberOfWarnings : 3
- Version : 1.0

The main section is titled 'Components' and contains a table with the following data:

Asset	Health Status	NumberOfAlarms	NumberOfWarnings	Alarm Activation	Alarm Suppression End Date
PROD [blurred]	In Maintenance	0	0	Alarm Inactive	9/8/2021 6:10:00 PM
PROD [blurred]	Healthy	0	0	Alarm Active	1/1/1971 12:00:00 AM
PROD [blurred]	Warning	0	1	Alarm Active	9/8/2021 9:56:55 AM
PROD [blurred]	Healthy	0	0	Alarm Active	1/1/1970 1:00:00 AM
PROD [blurred]	Healthy	0	0	Alarm Active	1/1/1970 1:00:00 AM
PROD [blurred]	Warning	0	1	Alarm Active	8/31/2021 5:10:02 PM
PROD [blurred]	Error	4	1	Alarm Active	8/31/2021 10:29:04 AM
PROD [blurred]	Healthy	0	0	Alarm Active	1/1/1970 1:00:00 AM
PROD [blurred]	Healthy	0	0	Alarm Active	1/1/1970 1:00:00 AM
PROD [blurred]	Healthy	0	0	Alarm Active	1/1/1970 1:00:00 AM
PROD [blurred]	Healthy	0	0	Alarm Active	1/1/1970 1:00:00 AM



# PI Vision : Roche installed base





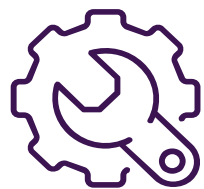
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# Result Obtained and Business Impact

**AVEVA**



# Summary



## Challenge

Reduction of complexity and number of monitoring systems for 25 sites.

Many local monitoring solutions are difficult to handle by the global PI support team.

Operational, project and licence costs reduction.

New PI instances/ interfaces installation cost and time reduction.



## Solution

Many legacy monitoring applications replaced by one solution with a global PI vision dashboard.

One monitoring solution with same technical and training requirements.

Script based installations of PI infrastructure generates AF output files automatically.



## Benefits

Harmonisation and standardisation of PI Core landscape within Roche.

Easier to validate/ maintain/ operate (trainings, document lifecycle, operational and maintenance costs reduction).

No further licence cost for monitoring (100% cost reduction). Licences covered by the Enterprise Agreement.



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# Next Steps, future Plans

## Near future (this year)

- Interface Watchdog monitoring
- Add more categories to AF templates, so that PI Vision displays get populated automatically
- Improved and more standardized notifications

## Possible future plans

- Add other, not directly PI-related devices to monitoring (e.g. Printers)
- Network load monitoring

THANK YOU

謝謝

DZIĘKUJĘ CI

NGIYABONGA

TEŞEKKÜR EDERİM

DANKIE

TERIMA KASIH

GRACIES

WHAKAWHETAI KOE

DANKON

TANK

TAPADH LEAT

SALAMAT

SPASIBO

GRAZIE

MATUR NUWUN

ХВАЛА ВАМ

MULȚUMESC

PAKMET CIZGE

고맙습니다

GRAZIE

شكرا

FAAFETAI

ESKERRIK ASKO

GO RAIBH MAITH AGAT

HVALA

HVALA

БЛАГОДАРЯ

GRACIAS

MAHADSANID

TEŞEKKÜR EDERİM

ТИ БЛАГОДАРАМ

DANKJE

EΥΧΑΡΙΣΤΩ

GRATIAS TIBI

OBRIGADO

TAK DANKE

AČIŪ

SALAMAT

MAHALO IĀ 'ŌE

TAKK SKALDU HA

МЕРЦИ

RAHMAT

MERCI

GRAZZI

PAKKA PÉR

ありがとうございました

DI OU MÈSI

ĐAKUJEM

HATUR NUHUN

PAXMAT CAĠA

SIPAS JI WERE

TERIMA KASIH

CẢM ƠN BẠN

UA TSAUG RAU KOJ

ТИ БЛАГОДАРАМ


СИПОС


WAZVIITA

FALEMINDERIT

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#### ABOUT AVEVA

AVEVA, a global leader in industrial software, drives digital transformation for industrial organizations managing complex operational processes. Through Performance Intelligence, AVEVA connects the power of information and artificial intelligence (AI) with human insight, to enable faster and more precise decision making, helping industries to boost operational delivery and sustainability. Our cloud-enabled data platform, combined with software that spans design, engineering and operations, asset performance, monitoring and control solutions delivers proven business value and outcomes to over 20,000 customers worldwide, supported by the largest industrial software ecosystem, including 5,500 partners and 5,700 certified developers. AVEVA is headquartered in Cambridge, UK, with over 6,000 employees at 90 locations in more than 40 countries. For more details visit: [www.aveva.com](https://www.aveva.com)

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# Backup Slides



# Questions?

Please wait for the microphone

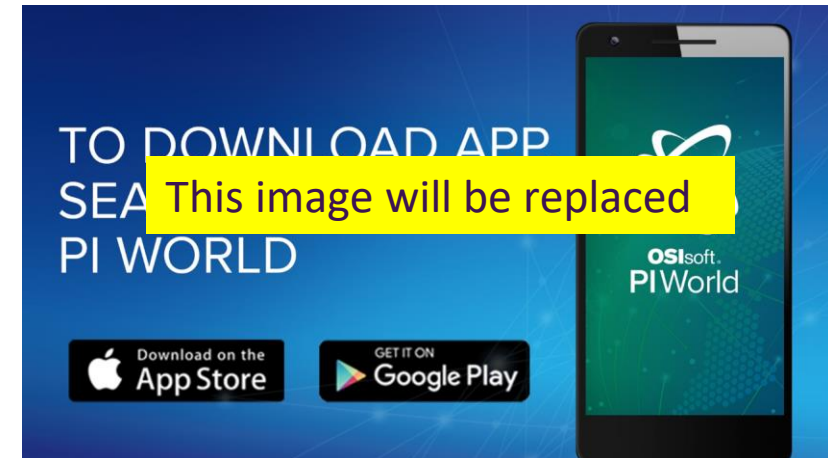
- State your name and company



# Please remember to...

Complete the survey!

- Navigate to this session in the mobile agenda for the survey





# Result Obtained and Business Impact

- 25 PI Systems to be managed to be supported by the new global support team
- Many different local monitoring solutions in place  
*Many legacy monitoring solutions replaced by one solution*
  - Causing high license costs  
*Licenses are covered by the Enterprise Agreement (no extra costs)*
  - Each solution needs specific training  
*PI knowledge always available on the sites, no extra training needed*
  - Impossible to handle by global support team  
*Easy to handle by one global support team*
- No global monitoring display possible  
*Global PI Vision display, easy to implement*
- Difficult to compare performance of the different systems  
*Same approach on all system, KPIs comparable*
- Company goal: reduction of complexity and number of systems  
*Only one solution in place*
- Cost reduction  
*No further licence cost for monitoring (100% cost reduction)*

**Business Impact: One global monitoring solution, no additional costs, easy to maintain, global and local monitoring displays available**





# Benefits and Savings

- New PI instance installation using dedicated scripts
  - Installation time reduction from 1-2 weeks to 30 minutes (project, human involvement and operational costs reduction)
- Global PI landscape simplification/ harmonisation
  - Multiplicity of the monitoring tools reduced (different vendors, Excel based tools)
  - Easier to validate/ maintain/ operate (trainings, document lifecycle, operational and maintenance costs reduction)
- No further licence costs for monitoring of PI infrastructure incl. PI interface nodes (100% cost reduction)

# 4 groups templates level

\\RBAMV42231\AVEVA - PI System Explorer

File Search View Go Tools Help

Database Query Date Back Check In

Elements

- Elements
  - SITE
    - SITE.PROD
      - SITE.PROD.ASSET-FRAMEWORK
      - SITE.PROD.DATA-ARCHIVE
      - SITE.PROD.INTERFACE-1
      - SITE.PROD.INTERFACE-2
      - SITE.PROD.MONITORING
        - SITE.PROD.HITMVPIMOP-PI AFServer
        - SITE.PROD.HITMVPIMOP-PI DA Server
        - SITE.PROD.HITMVPIMOP-PI Services
        - SITE.PROD.HITMVPIMOP-WIN Disks
        - SITE.PROD.HITMVPIMOP-WIN Network
        - SITE.PROD.HITMVPIMOP-WIN PING
        - SITE.PROD.HITMVPIMOP-WIN Processor
        - SITE.PROD.HITMVPIMOP-WIN TimeSync
          - SITE.PROD.HITMVPIMOP-WIN TimeSync - Domain Time II
      - SITE.PROD.SQL
      - SITE.PROD.VISION
      - SITE.PROD.WINDOWS1
      - SITE.PROD.WINDOWS-2
      - SITE.PROD.WINDOWS-3
      - SITE.PROD.WINDOWS-4
    - zzz.GlobalConfiguration
    - Element Searches

Elements

Event Frames

Library

Unit of Measure

Contacts

Management

2 Elements

General Child Elements Attributes Ports

Name: SITE

Description: FARM of Domains

Template: Roche 1.FARM

Categories: PSM

General Child Elements Attributes Ports

Name: SITE.PROD

Description: DOMAIN of Servers

Template: Roche 2.DOMAIN

Categories: PSM

General Child Elements Attributes Ports Analyses Notification Rules

Name: SITE.PROD.DATA-ARCHIVE

Description: Windows Server machine with Full monitoring

Template: Roche 3.SERVER: Machine (FULL) with Alarm Suppression

Categories: PI Performance Monitor;PSM

General Child Elements Attributes Ports Analyses Notification Rules

Name: SITE.PROD.DATA-ARCHIVE-PI DA Server
















Description: Optional Organizational Level for Components

Template: Roche 4.GROUP with Alarm Suppression








Categories: PI Performance Monitor;PSM

# Categories: Health and alarm suppression

- Health
  - 2 information categories (Alarms and Warnings)
  - sub alarms or warnings are reported to upper level

Category: Health			
		 Health Status	Healthy
		 NumberOfAlarms	0
		 NumberOfLowerAlarms	0
		 NumberOfWarnings	0
		 NumberOfLowerWarnings	0

- Alarm suppression
  - Allows upgrades / engineering work
  - Automatic restart when date is due
  - supervision of lower level of suppression

Category: Roche Alarm Suppression			
		 Alarm Activation	Alarm Active
		 Alarm Suppression End Date	1/1/1970 12:00:00 AM
		 Higher Level Active	Alarm Active

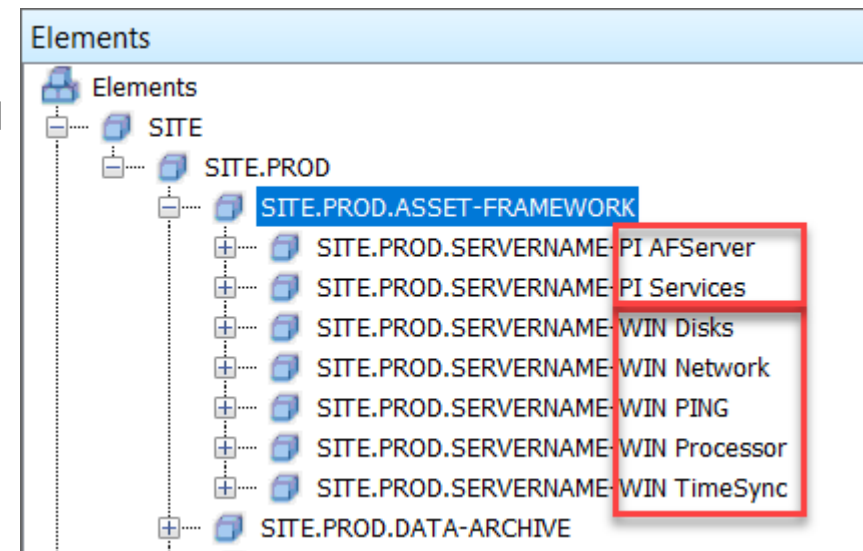
# Notifications

- Notifications are automatically sent to
  - Operation team (mail and mobile)
  
- Automatic ticketing system (SNOW)

The screenshot displays a web-based incident management interface. At the top, there is a navigation bar with a back arrow, a hamburger menu, and the text 'Incident - INC'. On the right side of the bar are icons for a pencil, a line graph, a list, and three dots, followed by buttons for 'Follow', 'Update', and 'Resolve', and up/down arrows. The main content area is divided into two columns of fields. The left column includes: 'Number' (INC), '\* Caller' (Global pi), '\* Affected user' (Global pi), 'Additional contact' (empty), '\* Service offering' (PI Monitoring), '\* Service' (PI Monitoring Service), 'Business criticality' (Critical), 'Category' (Service), 'Subcategory' (Application Error), and 'Configuration item' (empty). The right column includes: 'State' (On Hold), '\* On hold reason' (Awaiting Caller), '\* Reactivation date' (03-09-2021 17:56:39), '\* Contact type' (Webservice), 'Impact' (3 - Low), 'Urgency' (3 - Low), 'Priority' (5 - Planning), '\* Assignment group' (Ops), and 'Assigned to' (empty). Each field has a search icon and an information icon.

# Machine Monitoring: PI and Windows groups

- Segregation of 2 main types: PI elements and windows elements
  - Better differentiation between PI and windows functions, easier to find underlying errors
  - Subcategories are dedicated templates (e.g. all PI-related services are grouped in the level under “PI Services”)





# Automatic hierarchy and tag creation

## Input:

- Multiple levels of elements created automatically
- Tags created automatically
- Scripted based on two inputs

- A template file for the sub-hierarchy to be created (e.g. An interface node including interface service, watchdog etc.)
- A parameter file that contains all instance-specific values

## Output:

- A CSV file compatible with PI Builder
- ### Hierarchy creation:
- Use the output file with PI Builder

Template file

Name	ObjectType	Template	Tag
{Parent}.{Target}	Element	Roche 3.SERVER: Machine (FULL) with Alarm Suppression	{Targ
{Parent}.{Target}-PI Interfaces	Element	Roche 4.GROUP with Alarm Suppression	=Strir
{Parent}.{Target}-PI Interfaces - PI Interface PI-{ServiceName} {InterfacePointSource}	Element	Roche PI Interface Instance with Alarm Suppression	=Strir
{Parent}.{Target}-PI Interfaces - PI Buffer Subsystem	Element	Roche PI Buffer Subsystem with Alarm Suppression	=Strir
{Parent}.{Target}-WIN Disks	Element	Roche 4.GROUP with Alarm Suppression	=Strir
{Parent}.{Target}-WIN Disks - Logical Disk (C:)	Element	Roche Microsoft Windows: Logical Disk with Alarm Suppression	=Strir
{Parent}.{Target}-WIN Disks - Logical Disk (E:)	Element	Roche Microsoft Windows: Logical Disk with Alarm Suppression	=Strir
{Parent}.{Target}-WIN Disks - Logical Disk (F:)	Element	Roche Microsoft Windows: Logical Disk with Alarm Suppression	=Strir
{Parent}.{Target}-WIN Network	Element	Roche 4.GROUP with Alarm Suppression	=Strir
{Parent}.{Target}-WIN Network - Network Interface (vmxnet3 Ethernet Adapter)	Element	Roche Microsoft Windows: Network Interface	=Strir
{Parent}.{Target}-WIN Processor	Element	Roche 4.GROUP with Alarm Suppression	=Strir
{Parent}.{Target}-WIN Processor - Microsoft Windows: Processor 0	Element	Roche Microsoft Windows: Processor	=Strir
{Parent}.{Target}-WIN Processor - Microsoft Windows: Processor 1	Element	Roche Microsoft Windows: Processor	=Strir
{Parent}.{Target}-WIN Processor - Microsoft Windows: Processor 2	Element	Roche Microsoft Windows: Processor	=Strir

Parameter file

Target	ServiceName	UserSetInterfaceName	DescriptiveName	InterfaceID	InterfacePointSource	ProcessName
rbamv035559	opcint1		Test Read/Write OPC Interface Number 1	103	OPC	opcint
rbamv035559	PI_UFL1			102	UFL	PI_UFL

Output file

Parent	Name	ObjectType	Template
\PSM\PSM.DEV	PSM.DEV	Element	Roche 3.SERVER: Machi
\PSM\PSM.DEV\PSM.DEV	PSM.DEV	Element	Roche 4.GROUP with Al
\PSM\PSM.DEV\PSM.DEV	PSM.DEV	Element	Roche PI Data Archive v
\PSM\PSM.DEV\PSM.DEV	PSM.DEV	Element	Roche PI Archive Subsy
\PSM\PSM.DEV\PSM.DEV	PSM.DEV	Element	Roche 4.GROUP with Al
\PSM\PSM.DEV\PSM.DEV	PSM.DEV	Element	Roche Microsoft Windc
\PSM\PSM.DEV\PSM.DEV	PSM.DEV	Element	Roche Microsoft Windc
\PSM\PSM.DEV\PSM.DEV	PSM.DEV	Element	Roche Microsoft Windc
\PSM\PSM.DEV\PSM.DEV	PSM.DEV	Element	Roche 4.GROUP with Al
\PSM\PSM.DEV\PSM.DEV	PSM.DEV	Element	Roche Microsoft Windc
\PSM\PSM.DEV\PSM.DEV	PSM.DEV	Element	Roche 4.GROUP with Al