



Vision of the Integrated Factory: From Process Data to the Information Management

Presented by Giulio Ripaccioli, Massimo De Francisci



do more
feel better
live longer

GSK at-a-glance

A global healthcare Company
focused on 3 core businesses:

- Pharmaceuticals
 - Vaccines
 - Consumer Healthcare
-
- More than 100,000 associates
in 115 countries
 - More than 80 manufacturing
sites
-
- +30% Vaccines Market Shares



Pharmaceuticals

We develop and make medicines to treat a range of conditions including respiratory diseases and HIV/AIDS



4bn

packs of medicines
in 2014



Vaccines

We research and make vaccines for children and adults that protect against infectious diseases



800m

doses of vaccines
in 2014



Consumer Healthcare

We make a range of consumer healthcare products in four categories: Wellness, Skin health, Oral health and Nutrition



18bn

packs of consumer healthcare
products in 2013

*The opinions and ideas expressed in this presentation are strictly my own.
Everything said and presented is strictly my personal opinion and does not
necessarily represent the views of GSK*

From Sclavo to GSK Vaccines – our site story



Achille Sclavo

1861 - 1930

1904

A. Sclavo founds the Istituto Vaccinogeno e Sieroterapico Toscano Sclavo in Siena

1963

A. Sabin selects the Sclavo Institute for the manufacturing of its Polio vaccine

1971

Operations start in Rosia location

1986

Agrippal S1 launched

1997-2000

Fluad® (the first adjuvanted flu vaccine) is approved in Italy and then Europe

2008

FDA approves Rosia for the filling and packing of Fluvirin®

2009

FDA approves Siena and Rosia for the manufacturing, filling and packing of Agriflu®

Jan 2013

Bexsero® EU approval

2015



GSK acquires Siena/Rosia site

1900

1960

1970

1980

1990

2000

2006

2008

2009

2010

2012

2013

2014

2015

1895

A. Sclavo develops a serum against anthrax



1958

First influenza vaccine licensed

1975

Agrippal platform starts operations

1992

Chiron acquires Sclavo's Institute

2006

Novartis acquires Chiron

Nov 2012

Bexsero® CHMP positive opinion

2010

FDA approves Siena and Rosia for the manufacturing, filling and packing of Menveo®

From Sclavo to GSK Vaccines – our site story



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Operations
start in Rosia
location

1986

Agrippal S
launched

2008

FDA approves Rosia for the
manufacturing of Fluvirin®

2010

Starts MES project in
packaging – first PI
Server installation

2009

FDA approves Siena and
Rosia for the manufacturing,
filling and packing of Agriflu®

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A. Sclavo
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1958

First
influenza
vaccine
licensed

2006

Decision to build a new
facility for the bacterial
vaccines bulk
manufacture

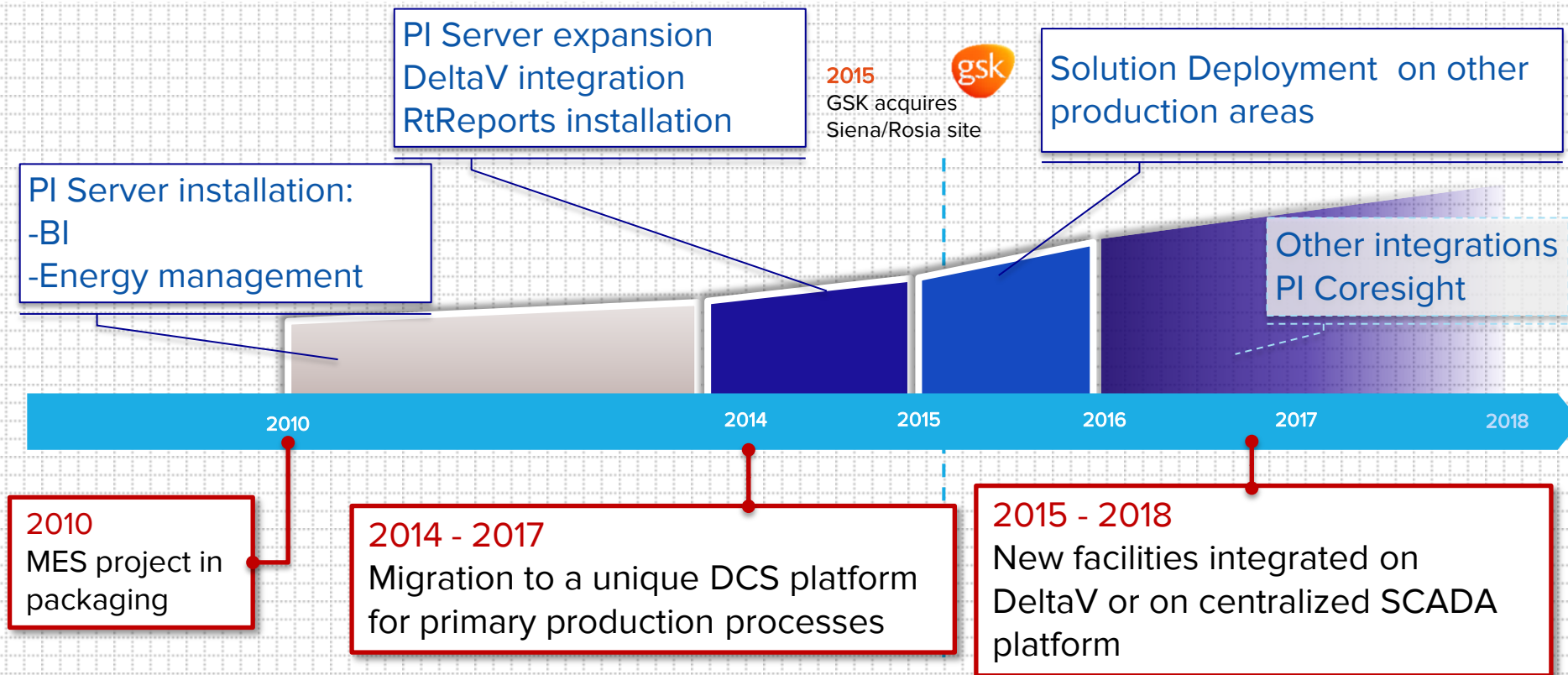
2006

Novartis acquires
Chiron

2014 - 2017

Migration to a unique
DCS platform for
primary production
processes

Our journey with OSIsoft PI System



Background



The risk to create a maze of data that does not bring any information to the user is really high if all these data are not properly managed and correlated. From here starts to create the need of a routing path for the information and to protect the user by providing only the necessary data by offering a user friendly system that directly brings to him all the useful information for that person to make the right decision at that time.

Operational drivers

1. Reduce the automation islands (standardize).
2. Simplify reporting and quality control by combining production data according to a unique batch/lot ID instead of multiple batch reports per execution phase.
3. Improve reporting accuracy and reliability by tightly integrating system historian and plant historian (OSIsoft PI Data Archive).
4. Improve collaborative operations by easily integrating real-time process data.
5. Increase control system ownership to drive changes and expansion following a consistent evolution strategy.
6. Improve operator awareness with an enhanced alarm management system and consistent Human Machine Interface designed according to the most recent standards and best practices.



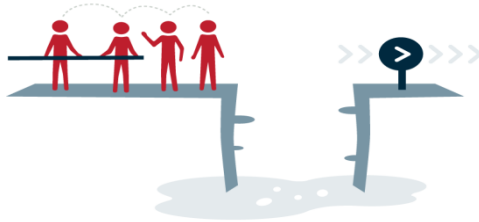
Site Automation Plan

Other drivers

Adoption of a new collaborative operation based on integrated information layer



Improve operators awareness with an operator centric design approach



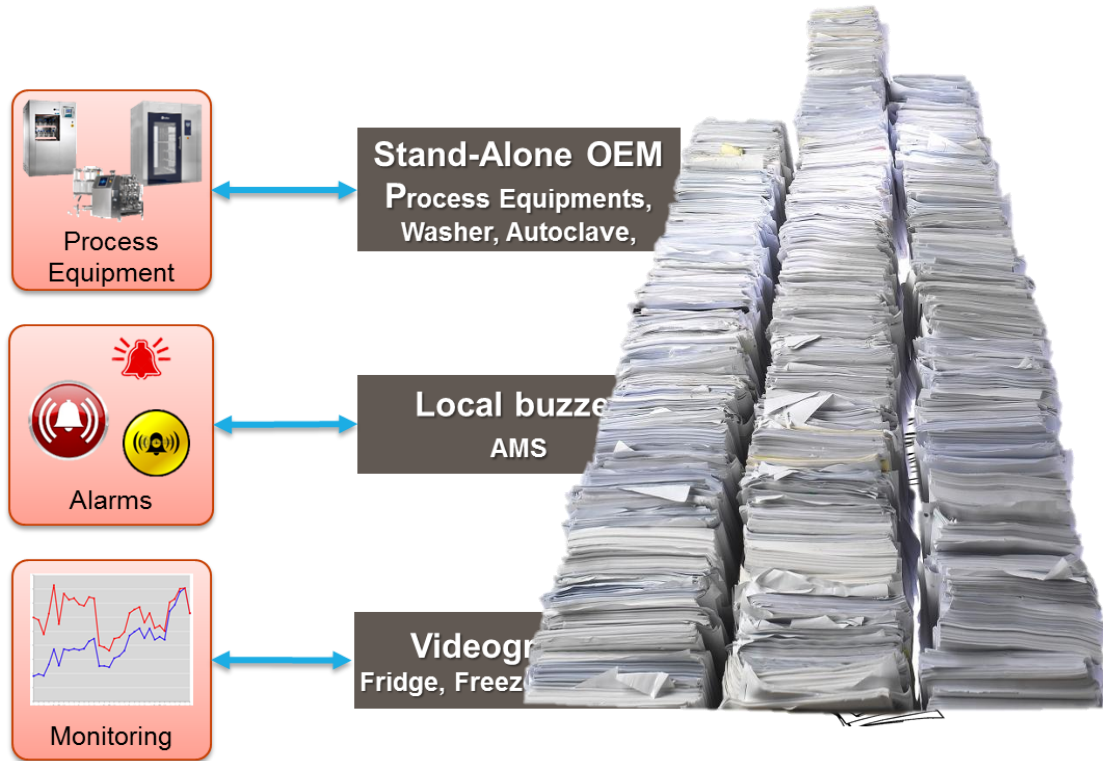
Design the new system as part of a site wide plan: automation as part of a broader vision



Improve the support model and the service to operate the facility



Traditional approach



Lots of Paper

Lack of Reliability

- Not a Redundant system - failure impact on Production

Lack of Operability

- Multiple operator interface to interact with

Lack of Compliance

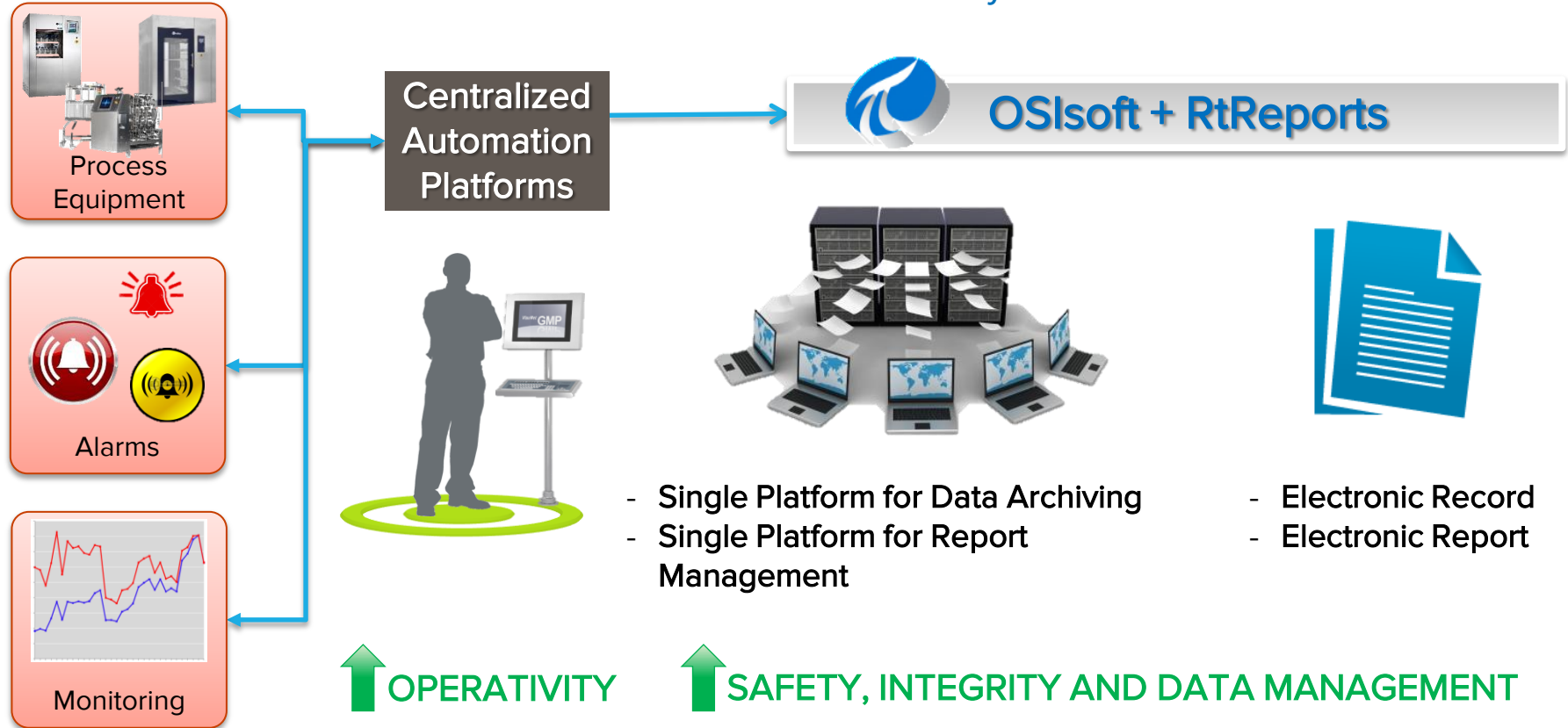
- Data integrity Issues (time synchronization, data loss, etc.)

Lack of Efficiency

- High administration effort
- Human errors
- Limited data availability

Site plan

The PI Server is the backbone of the information layer



Our site implementation

Enterprise system integration

- SAP
- CMMS
- Labeling

Enterprise
systems

Data visualization and reporting

- RtReports
- Dedicated reports
- eBR

MES

Reporting



Historian, HMI, SCADA

- DeltaV
- Stand alone HMI
- SCADA

Data
historian



HMI



Process Control layer

- DeltaV
- Stand alone PLC
- Integrated PLC



Control sys

Field

Our site implementation

Enterprise system integration

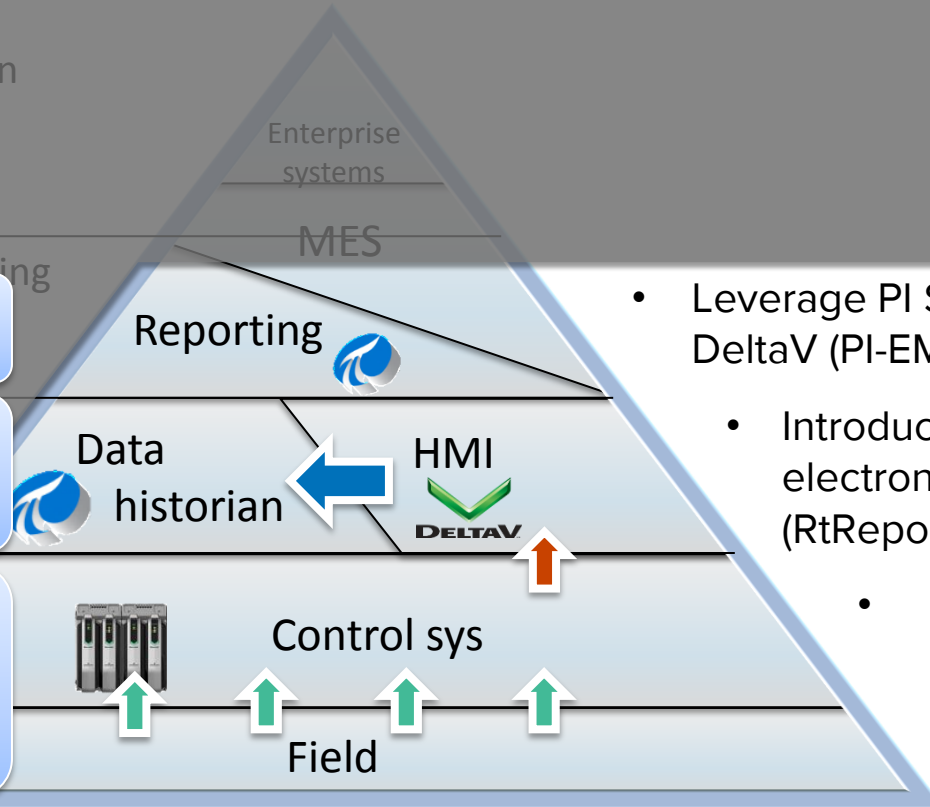
- SAP
- CMMS
- Labeling

Data visualization and reporting

On time

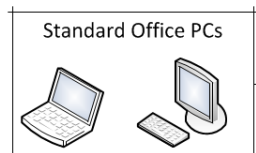
Near real-time

Real-time



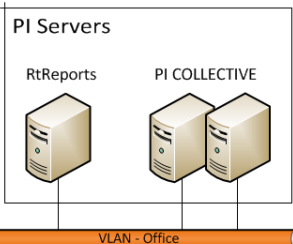
- Leverage PI Server connectivity to DeltaV (PI-EMDVB)
- Introduce the concept of electronic reporting (RtReports)
- Data accessibility (PI ProcessBook, PI BatchView, PI DataLink)

Integrate DeltaV and the PI Server



Process Monitoring

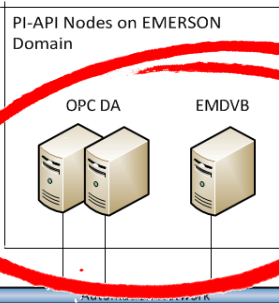
Report web access



Site Historian:
PI Data Archive



Report development:
RtReports



Real-time:
OPC DA interface



Batch,
Alarm & Events
PI-EMDVB

PI-EMDVB

Custom version to cover a issue

WI#112634 To ensure batch start and end times are correct and batches are created in the correct order, timestamps are now converted in a thread-safe manner.

More than 2000 batches acquired

Lesson learned

Sensitive to configuration

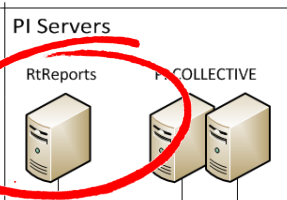
Know your source data

Integrate DeltaV and the PI Server



Process Monitoring

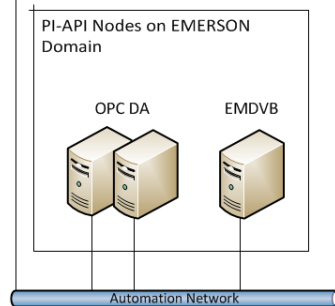
Report web access



*Site Historian:
PI Data Archive*



*Report development:
RtReports*



*Real-time:
OPC DA interface*



*Batch,
Alarm & Events
PI-EMDVB*

RtReports

BPR attachments:
From 51 to 14 + 1 eReport

Over 20 templates developed and released.

1 relevant case -> closed

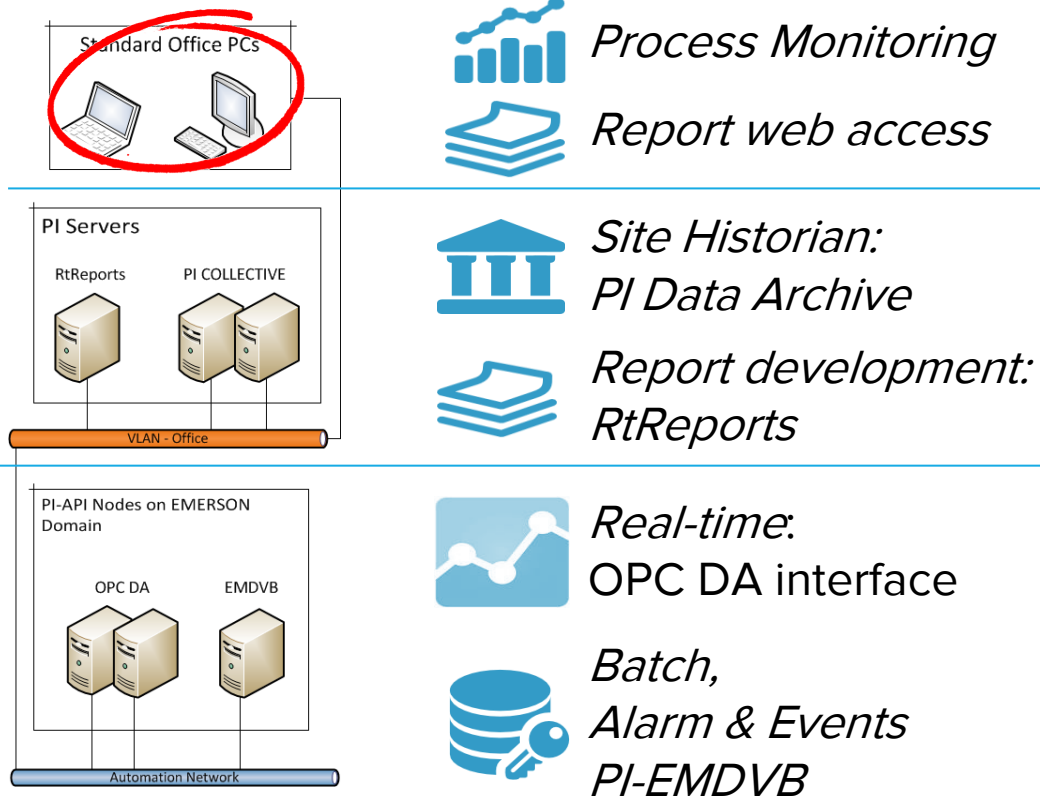
Lesson learned

Challenge your reports

Create a strong team (Eng-Mfg-QA)

Know your source data

Integrate DeltaV and the PI Server



RtReports

More than 300 reports fully electronically approved in ≈10 Months

Report review time (Mfg+QA) reduced by 40%

Overall manual entry on BPR reduced by 60%

0 compilation errors

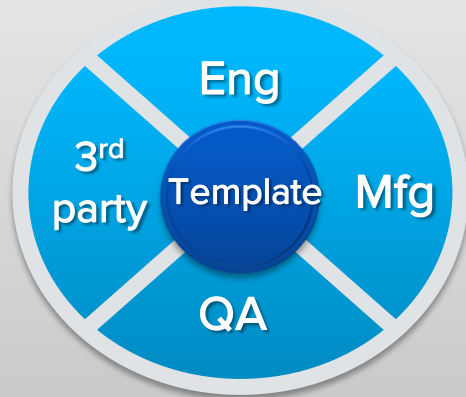
Lesson learned

Create a strong team (Eng-Mfg-QA)

Know your source data

Some details on reports

Integrated team



- ✓ Track all the Process Operation on DeltaV
- ✓ Exception based
- ✓ Critical alarms (according to process phase)
- ✓ Compute the parameter conformity compared to standard values



Report approval



Step 1 Mfg:

- Comments
- Section verification
- Approval

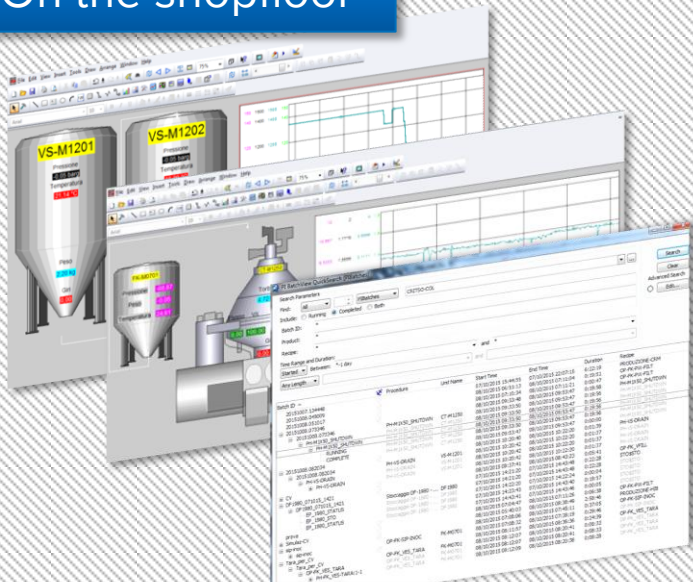
Step 2 QA:

- Comments
- Final Approval



Information access tools

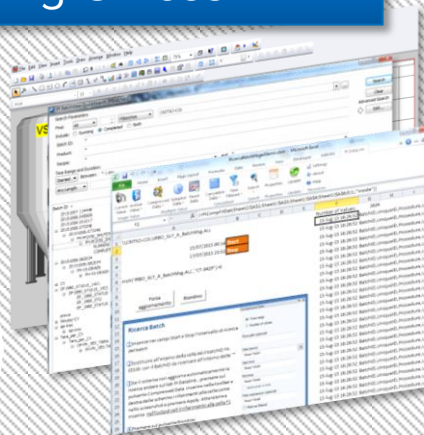
On the shopfloor



- PI ProcessBook
- PI BatchView

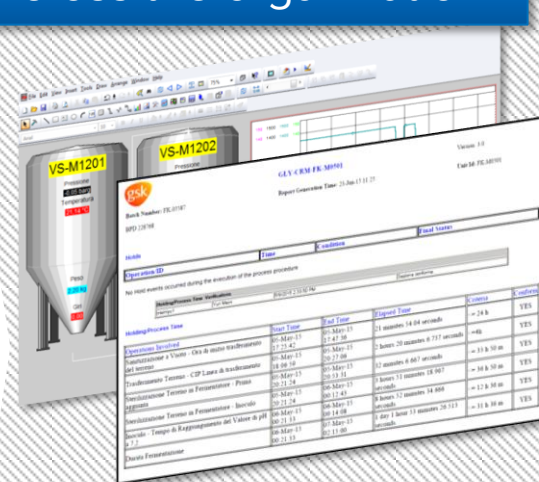
*.pdi not validated. Developed by Mfg

Mfg Offices



- PI ProcessBook
- PI BatchView
- PI DataLink

Across the organization



- RtReports

Fully validated and approved by Eng, Mfg and QA

[illegible][illegible]

Summary

To keep a process in control it is crucial to give the right information to the right people at the right time. The system standardization, the data centralization and availability are key points.

A strong team work, a shared vision and a robust technical solution are the pillars of the integrated factory.



BUSINESS CHALLENGES

1. Improve and simplify reporting and quality control
2. Increase control system ownership
3. Improve alarm management
4. Data Integrity

SOLUTION

- A. Reduce Automation islands
- B. Connect the DCS to the PI Data Archive and enhance the PI System (PI Tags, PI ProcessBook, PI DataLink, PI BatchView)
- C. Implement RtReports

RESULTS AND BENEFITS

- Report approval cycle time reduced by 40%
- Overall manual BPR entry reduced by 60%
- Increased process awareness and ownership
- Production increase by 20% supported by the new systems

Contact Information

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GSK Vaccines

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Questions

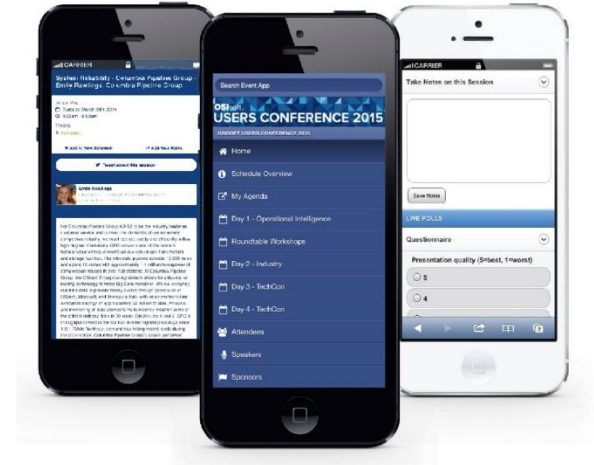
Please wait for the **microphone** before asking your questions



State your
name & company

Please don't forget to...

Complete the Online Survey
for this session



<http://eventmobi.com/emeauc15>



감사합니다

谢谢

Danke

Merci

Gracias

Thank You

ありがとう

Спасибо

Obrigado