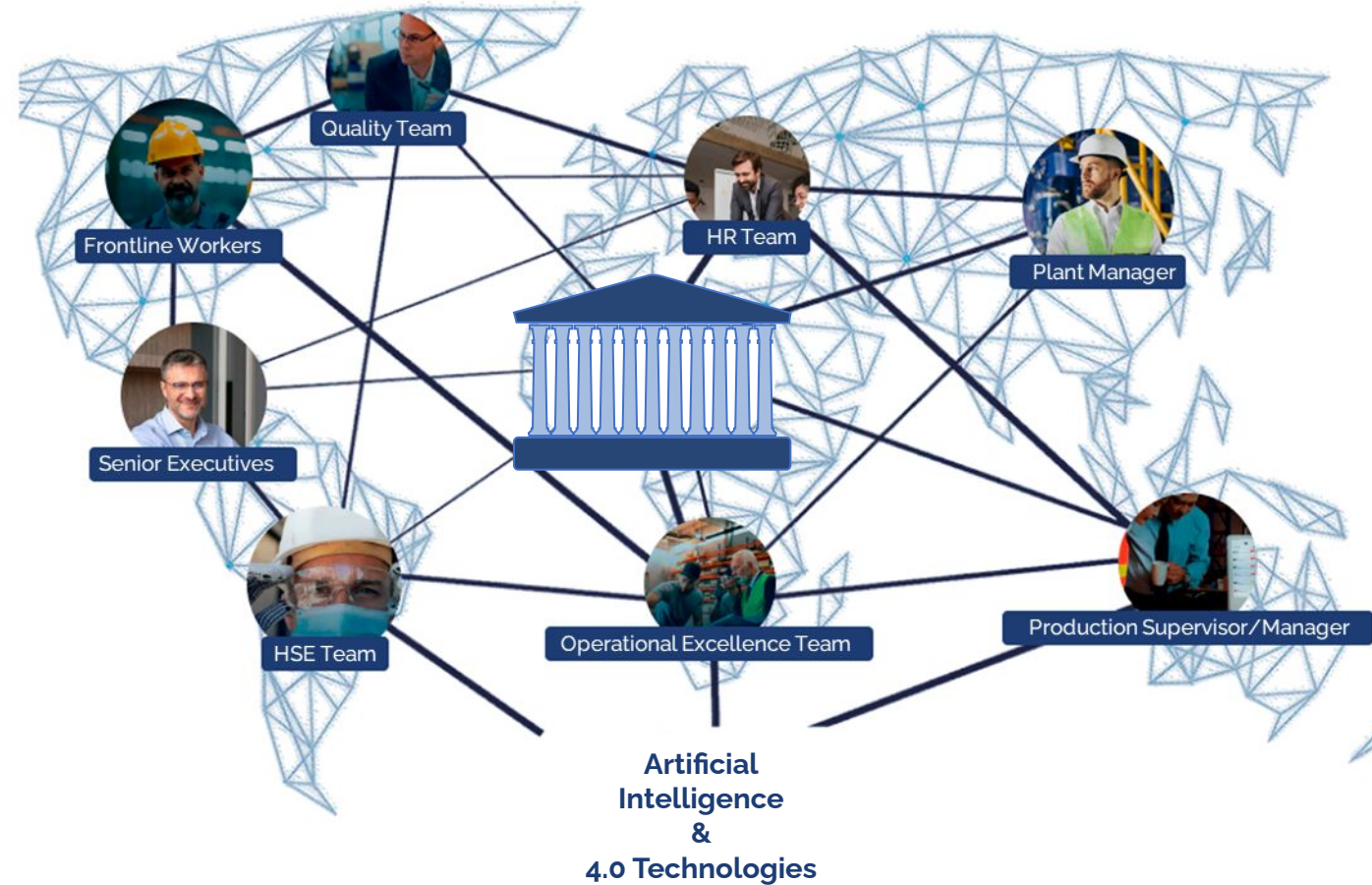


When Operational Excellence meets

Digital

Scaling OpEx in Food Manufacturing: A Practical Journey from paper to Digital





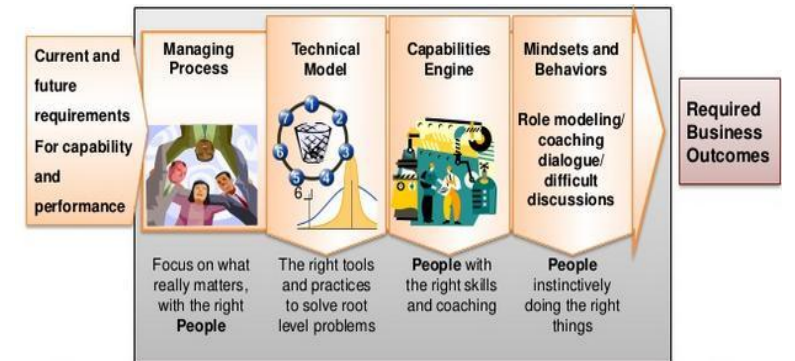
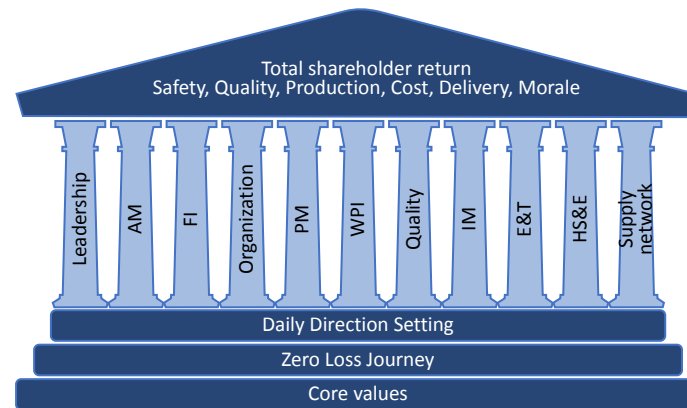
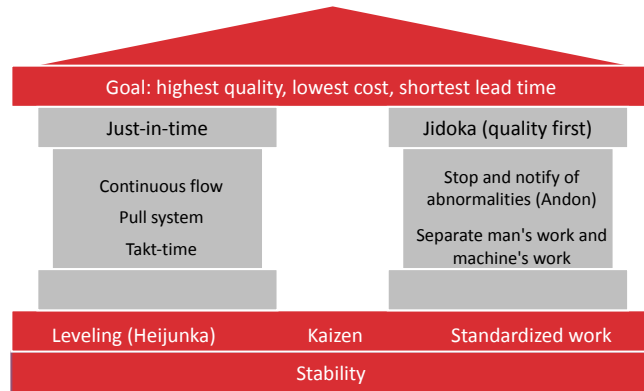
Personal Introduction

- 2011-...** **EFESO Management Consultants** – Leader and architect of many multi-site Operational Excellence programmes
- 2010-2011** **Heineken** – TPM Manager
- 1992-2010** **Tetra Pak** - Operations Manager, Customer Service Manager, FI Pillar Leader



Operational Excellence (OpEx)¹ programs are a key factor for achieving top-tier performance in manufacturing

Companies such as Toyota (TPS), P&G (IWS) and DuPont (DPS) are good examples of best-in-class OpEx programs delivering superior results in all PQCDMSM dimensions



And the same applies to food...

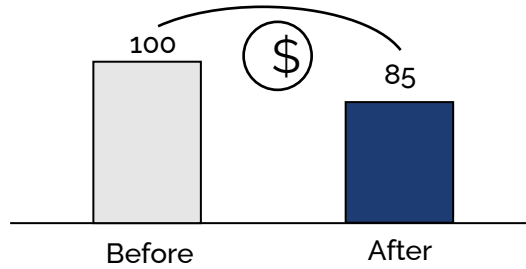


1. Operational Excellence = TPM, Lean, WCM, CI, Production System,...

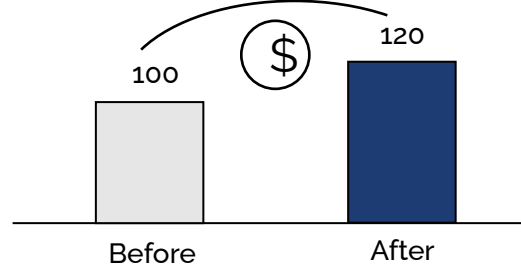
OpEx programs offer significant and real performance improvements leading to value (\$) in all PQCDMS dimensions...

Typical impact (after 3 years):

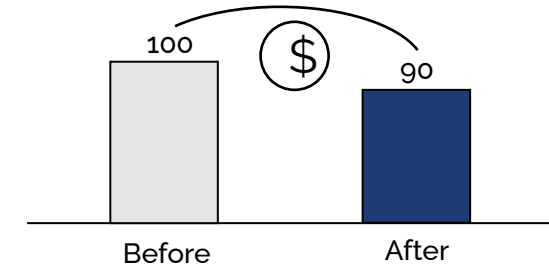
Transformation Cost (index)



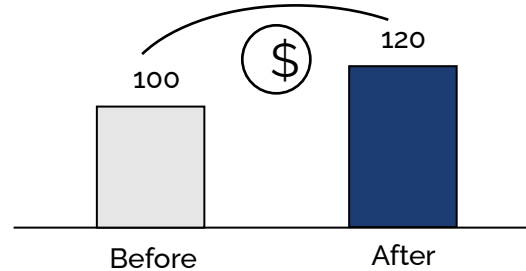
Productivity (index)



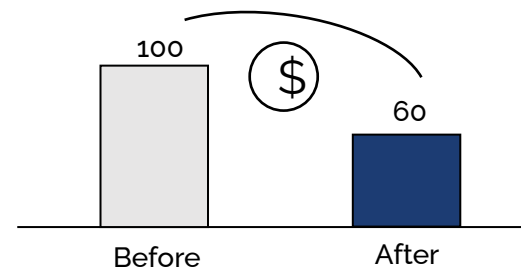
Material Loss (index)



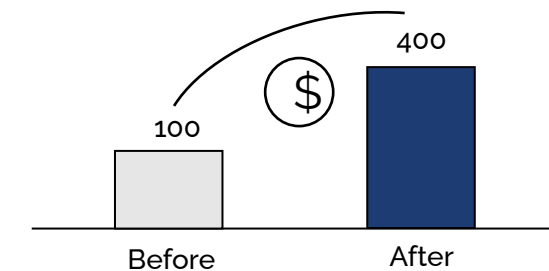
OEE (index)



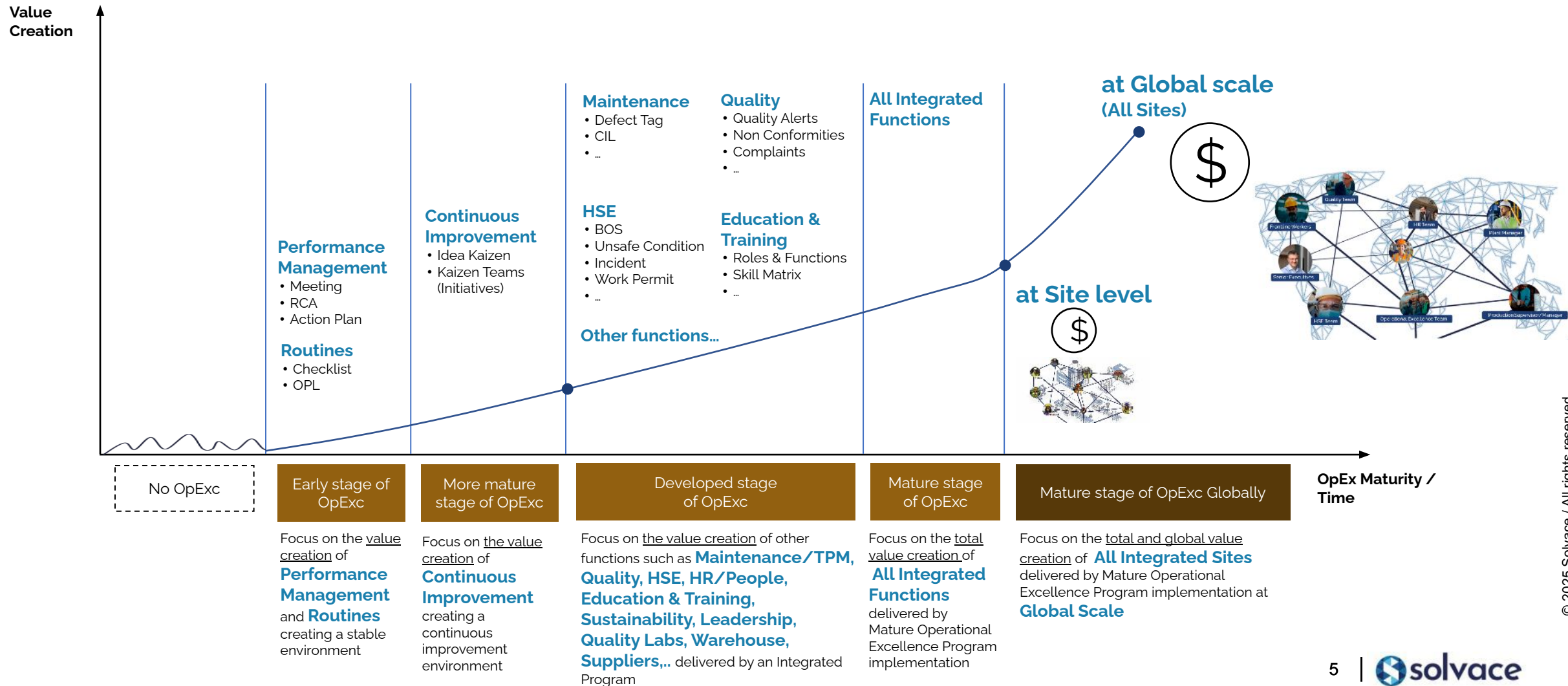
Customer complaints (index)



Employee suggestions for improvement (index)

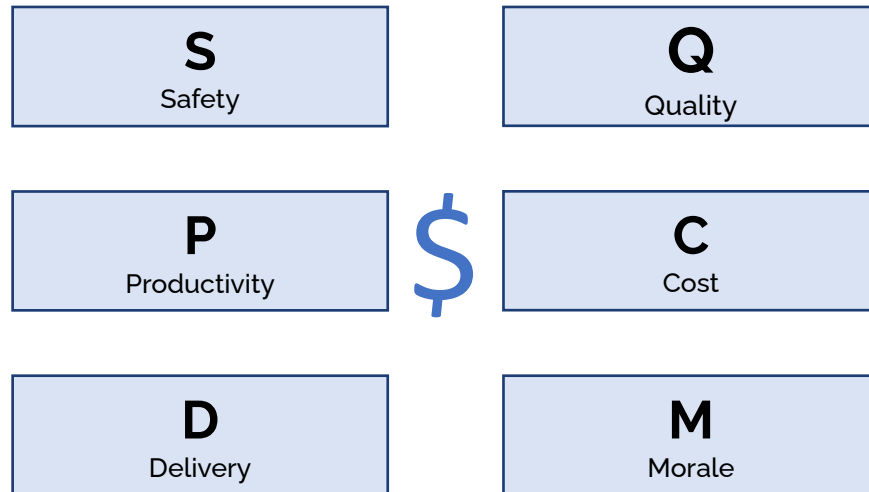


... and value creation increases as other functions (Quality, HSE, HR, E&T, Supply Chain...) become part of the program and it reaches the global scale...



Two key challenges:

Rapidly build the OpEx system and culture that brings value



When you have built it – sustain the performance and culture

The world changes around you...

The three people who led and drove the change get promoted to Group roles...

Etc....

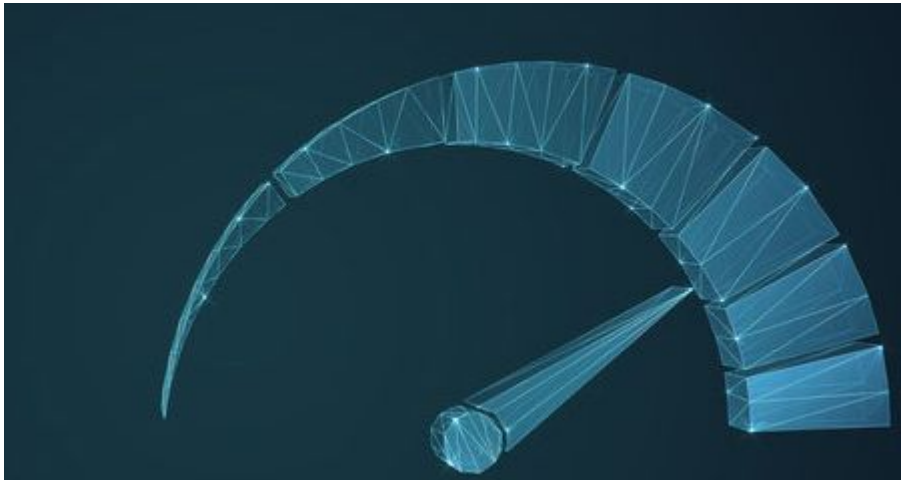
Digital supports in both challenges:

Rapidly build the OpEx system and culture that brings value

Go directly to the future approach

Digital paradox & new generations of employees

Structure, process, rigor



When you have built it – sustain the performance and culture



Digital helps preserve good processes and prevent deviations

Easy to maintain standards, across the globe

New employees only experience the correct approach

Go directly to the future approach and preserve good processes

One simple example...

Client : Global player in the Food Sector



1 Defect Tag (AM)

& CMMS (PM)

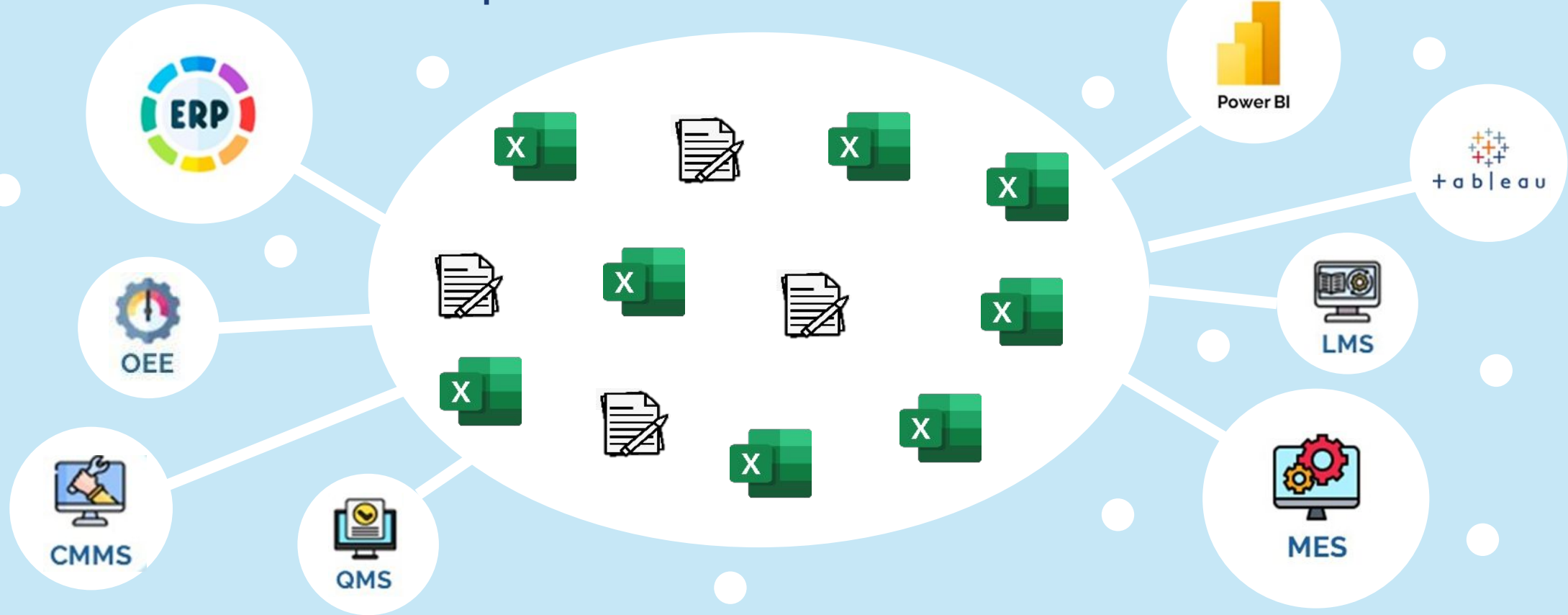
Before
(2min43s)

After
(55s)

Most of us start with paper and Excel...

Common existing software landscape

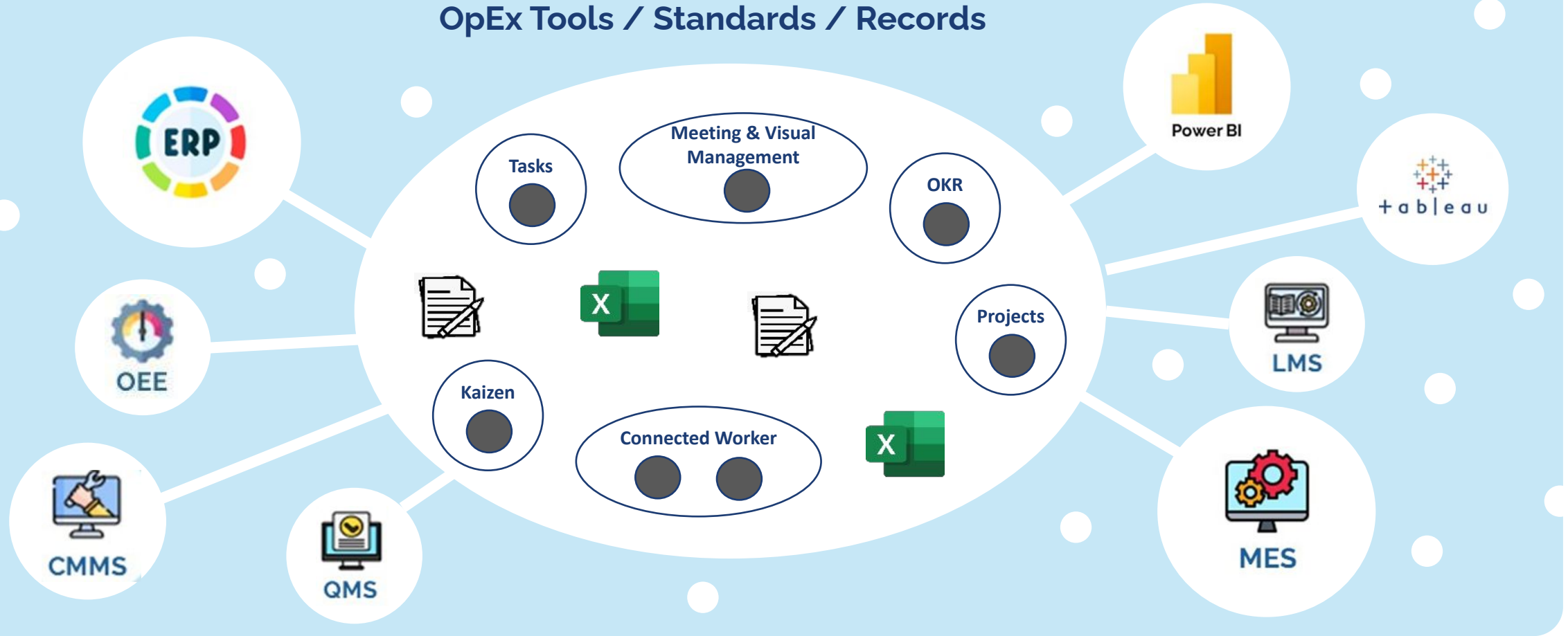
OpEx Tools / Standards / Records



Digitizing OpEx should not create (or bring back) functional (digital) silos due to the use of fragmented and localized software applications...

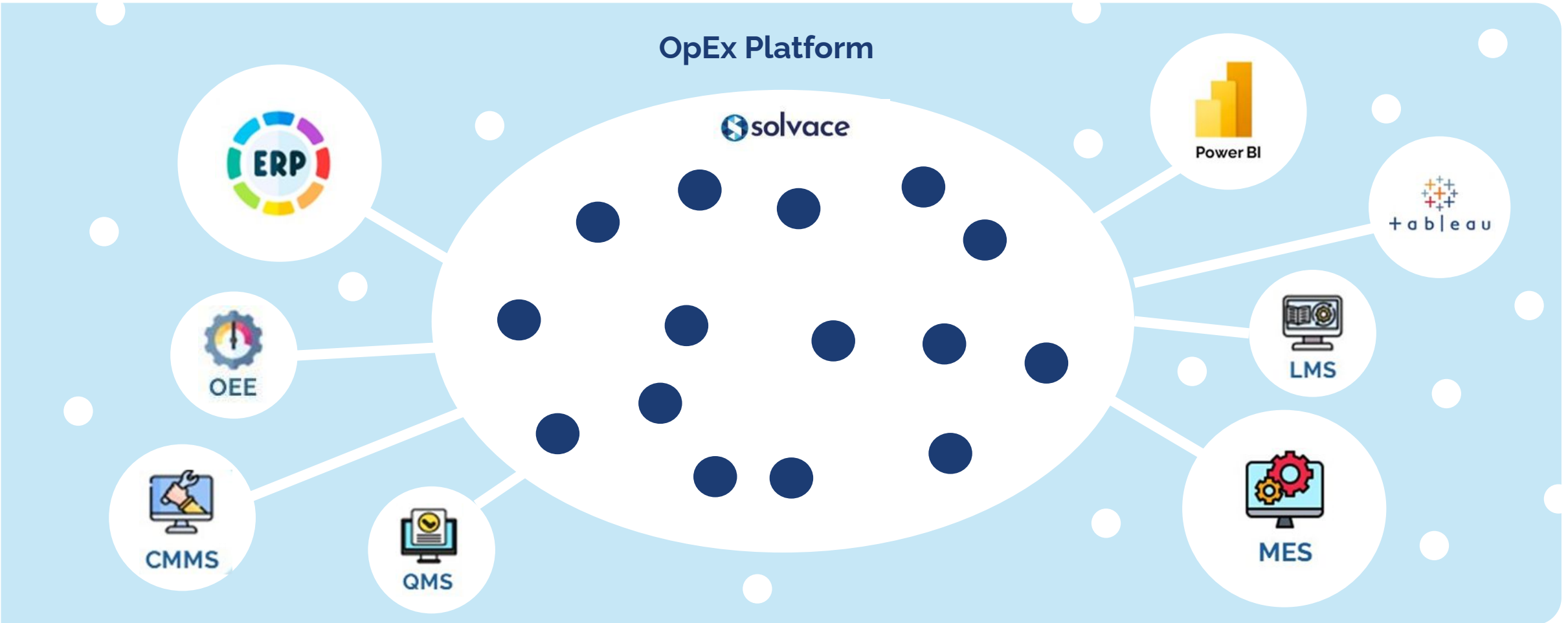
● Software from different suppliers

OpEx Tools / Standards / Records

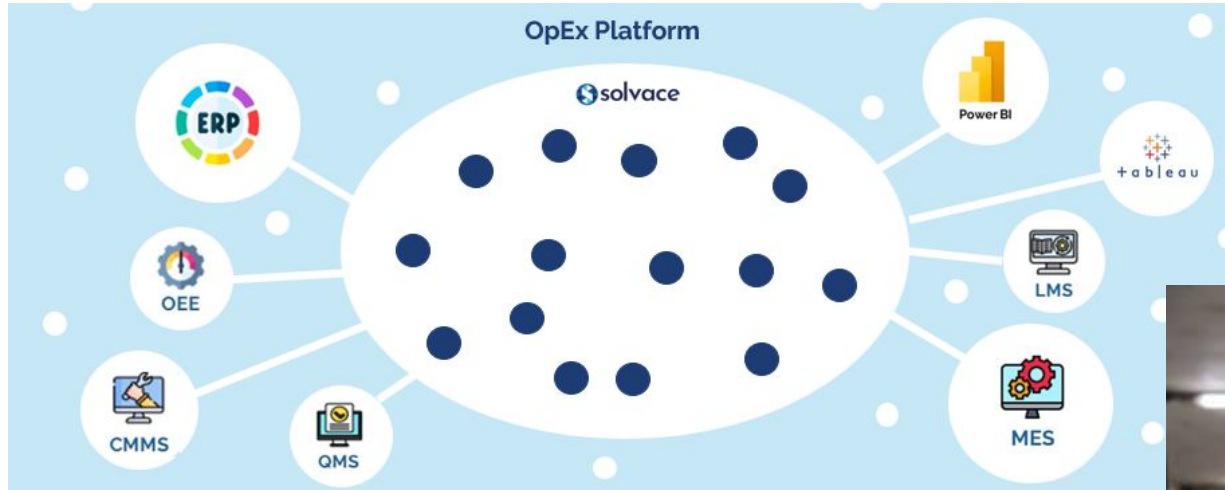


...but a shared environment where functions, people of different levels and sites can work and collaborate leveraging the essence of OpEx...

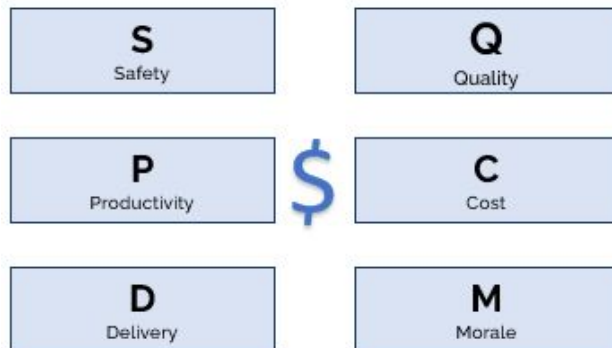
● Digital modules of an integrated OpEx platform



...and simplifies the work of the operators (and everybody else)



One log in, on **one** device brings all required functionality to the people who add the value



Digital OpEx platforms can BOOST existing Legacy Systems, instead of replacing them

Selected Use Cases

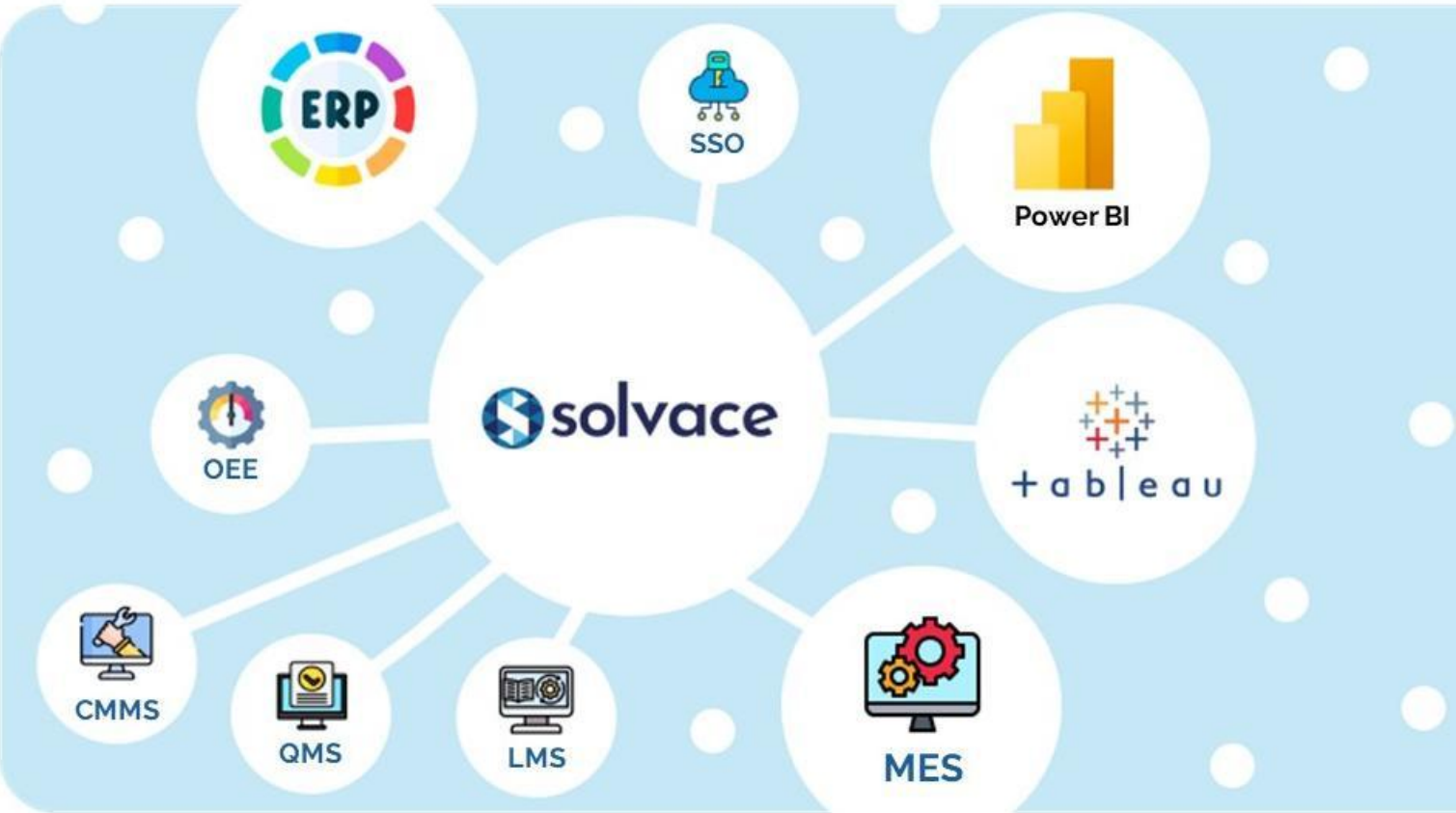
- 1 Defect Tag (AM) & CMMS (PM)
- 2 PQCDSDM data (MES, OEE, ERP..) & Daily / Tier Meetings
- 3 Breakdowns (OEE/MES) & Root Cause Analysis
- 4 Corporate LMS & Local LMS/Skill Matrix
- 5 Kaizen Idea & BI application



Digital OpEx platforms can BOOST existing Legacy Systems

Selected Use Cases

- 1 Defect Tag (AM) & CMMS (PM)
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1 Defect Tag (AM) & CMMS (PM)

Client : Global player in the Food Sector



Defect Tag is Opened



Notification is automatically Created



Work Order is Opened



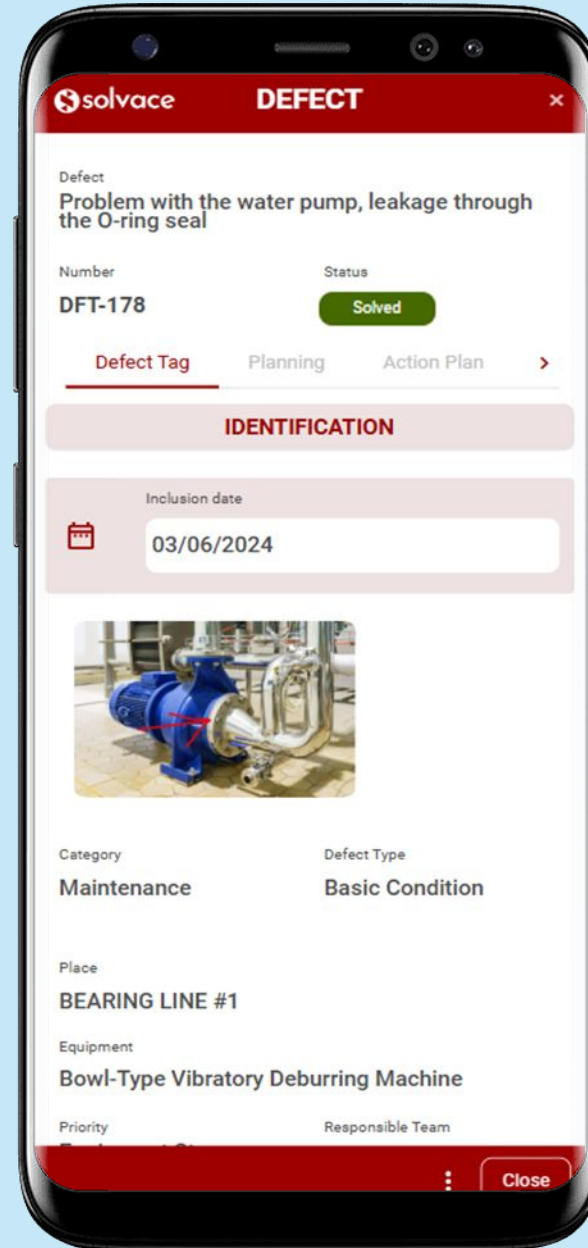
Work Order is Planned



Work Order is Executed/ Closed



Defect Tag is automatically Closed



Defect Tag is automatically closed (and removed from the equipment)

Digital OpEx platforms can BOOST existing Legacy Systems

Selected Use Cases

- 1 Defect Tag (AM) & CMMS (PM)
- 2 PQCDSDM data (MES, OEE, ERP..) & Daily / Tier Meetings**
- 3 Breakdowns (OEE/MES) & Root Cause Analysis
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- 5 Kaizen Idea & BI application



2 PQCDSM data & Daily / Tier Meetings
(MES, OEE, ERP.)

•**Clients:** Global players in the Cosmetic & Pharma Sectors



Before



After

2 PQCDSM data & Daily / Tier Meetings

(MES, OEE, ERP..)

•Clients: Global players in the Cosmetic & Pharma Sectors

Data created in legacy systems...



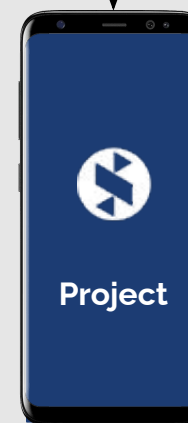
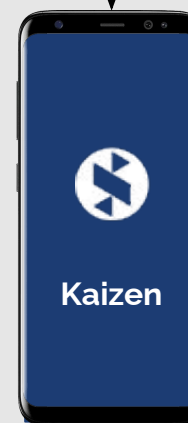
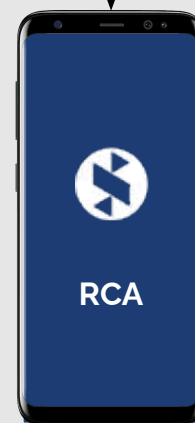
Segregated data visualization tools & data creation tools ...



Data created directly in the OpEx platform...



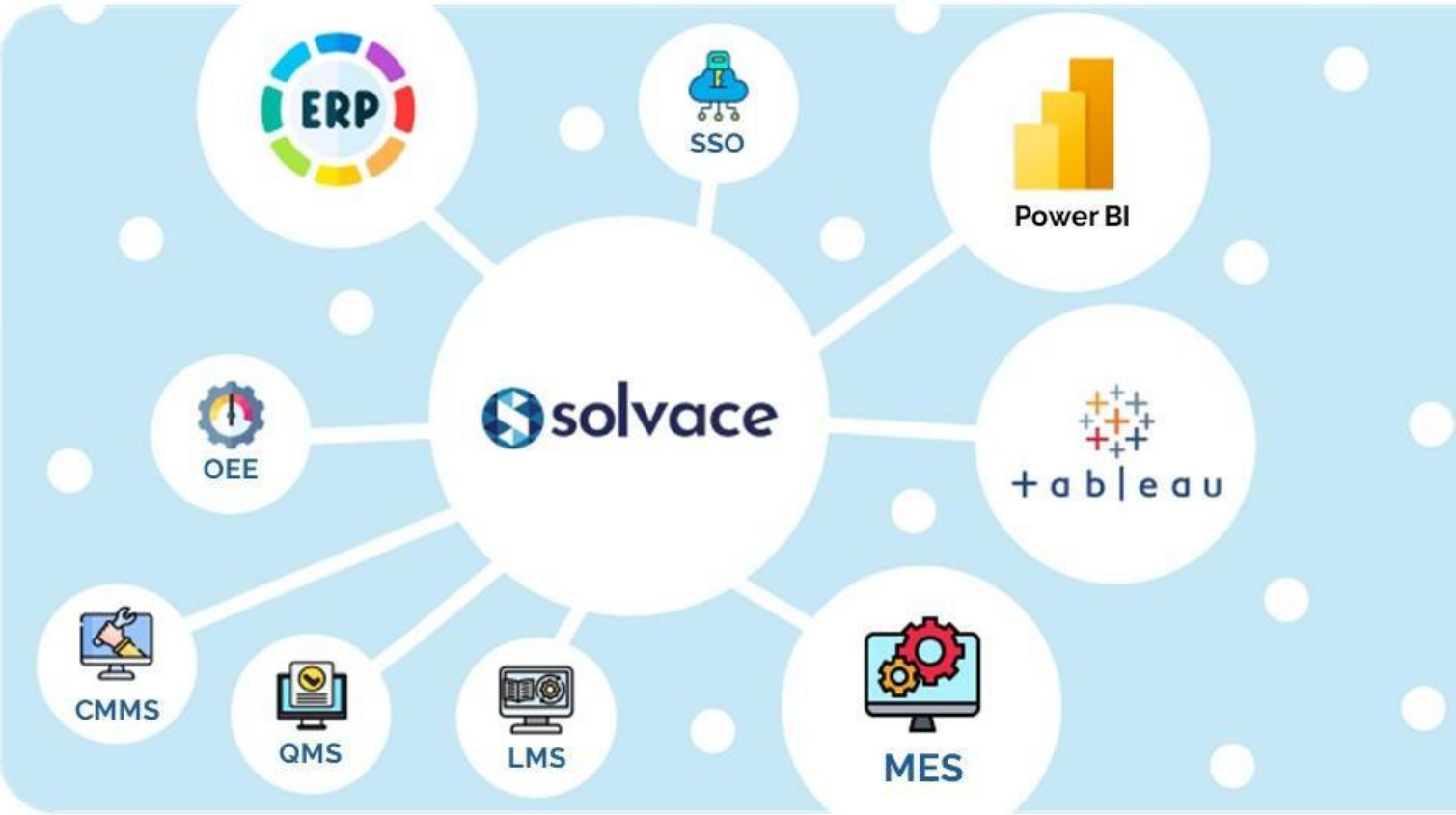
Countermeasures (if deviation found)



Digital OpEx platforms can BOOST existing Legacy Systems

Selected Use Cases

- 1 Defect Tag (AM) & CMMS (PM)
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3

Breakdowns
(OEE/MES)

&

Root Cause Analysis

Client : Global player in the Agro Sector

Pentagro

solvace

Equipment
Breakdown
/ Stop



RCA is
automatically
Created



RCA log is
automatically
updated



RCA is
Performed




RCA, with MES data, is
automatically created for
investigation

solvace RCA 1-PAGER

RCA 1-pager Whiteboard Feed 7

STEP 1 - PROBLEM DEFINITION



WHAT?
Conveyor left side damaged, loosing parts and impacting on product quality

WHERE?
Main conveyor of Line 5

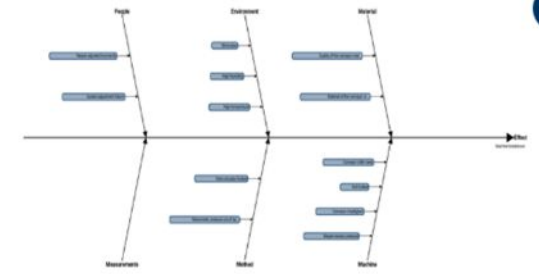
WHEN?
During operation on 04:00am. After the 4th day of production after cleaning/maintenance

WHO?
Operator ability (level 2 on Skill Matrix): the guides may have been installed incorrectly after cleaning

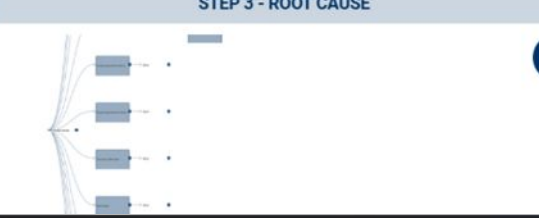
WHICH?
It occurs every time when the conveyor gets out of correction

HOW?
Operator ability (level 2 on Skill Matrix): the guides may have been installed incorrectly after cleaning

STEP 2 - PROBABLE CAUSES



STEP 3 - ROOT CAUSE

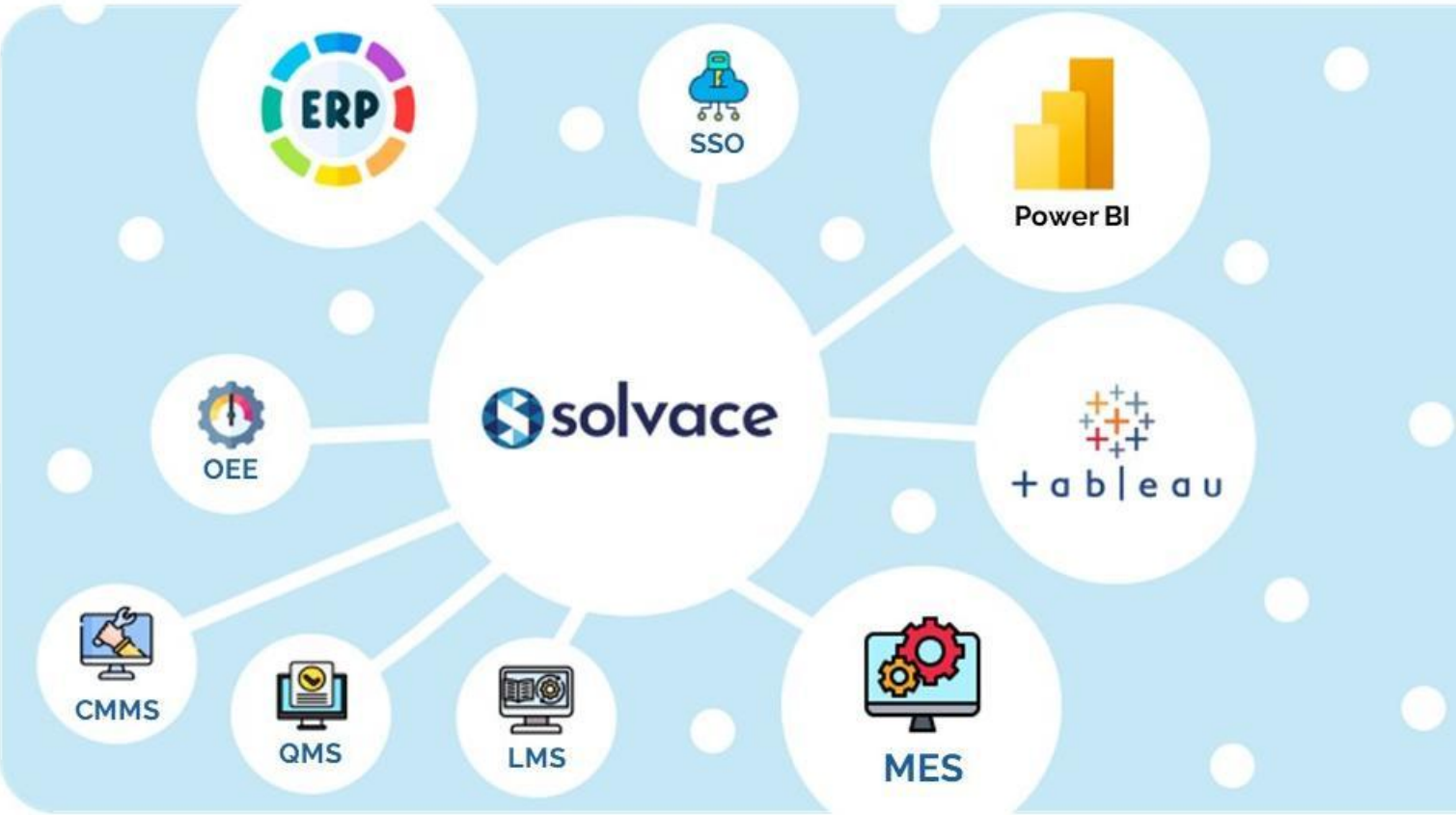


IMMEDIATE ACTION PLANS

Digital OpEx platforms can BOOST existing Legacy Systems

Selected Use Cases

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- 5 Kaizen Idea & BI application



4 Corporate LMS & Local LMS/Skill Matrix

Client : Global player in the Food Sector



Training need
(Individual
Training
Curriculum)

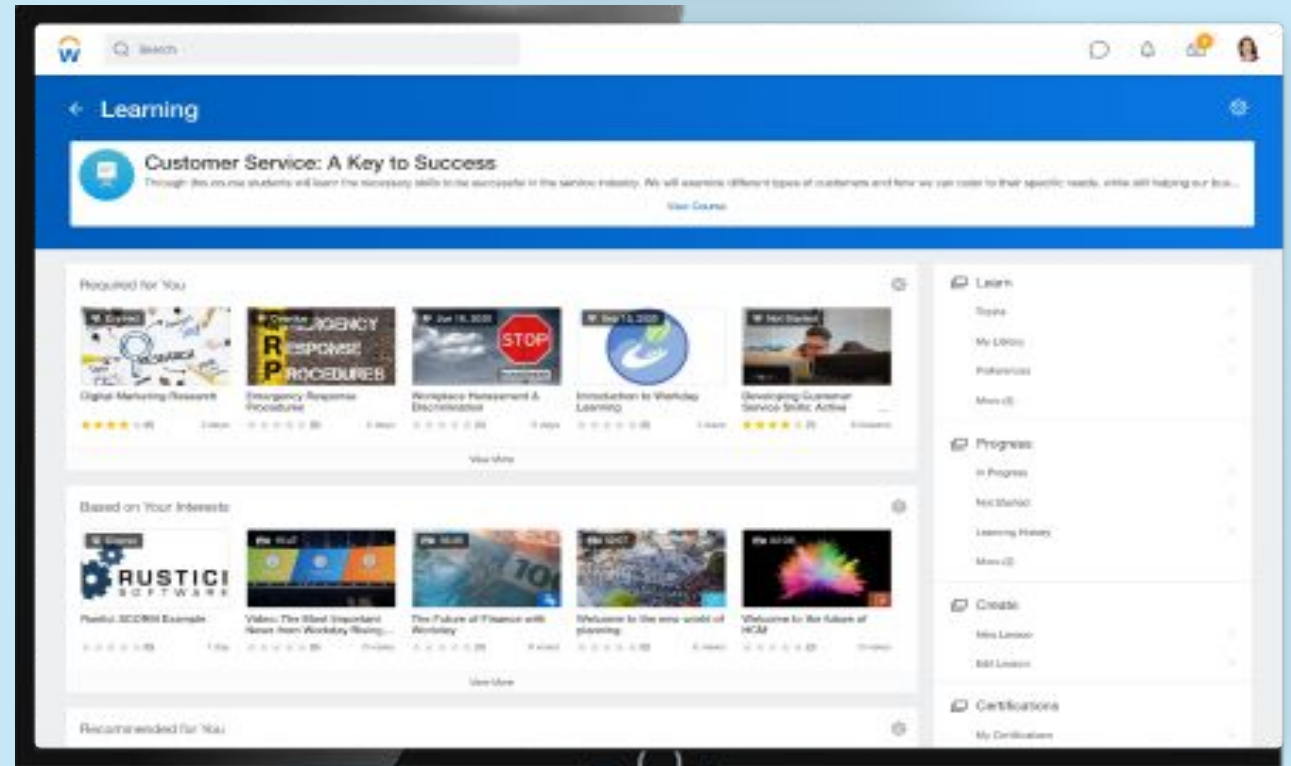


Training is
automatically
updated

Training expires



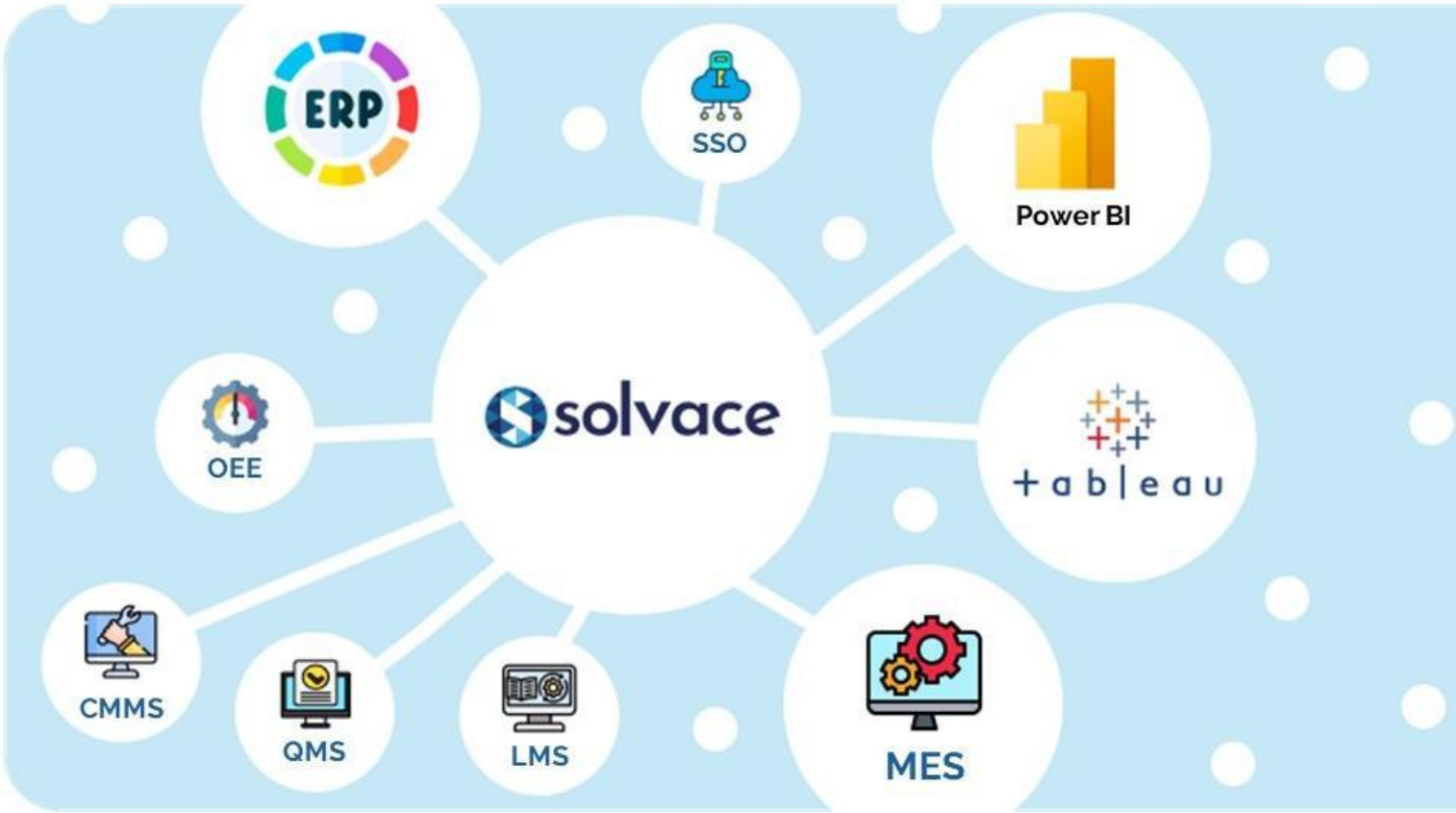
Training status is
automatically reflected in the
corporate LMS



Digital OpEx platforms can BOOST existing Legacy Systems

Selected Use Cases

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- 5 Kaizen Idea & BI application**



5 Kaizen Idea & BI application

Client : Global player in the Food Sector



Before
(5min12s)

RESPONSIBLE	TOTAL	PERCENTAGE	N°	KAIZEN IDEA	STATUS
Achmad Sholehuddin	8	12%	IMP-18	IMPLEMENT A SYSTEM TO MANAGE THE DOCKS	Executed
Ahmed Bellamine	7		IMP-16	REPLACE PLASTIC BRACKETS BY METAL ONES	Executed
Ahmed Sayed	1				
Ahmet Aydin	3		IMP-13	INSTALL SENSOR TO TURN THE LIGHTS ON AUTOMATICALLY	Executed
Alberto Barros	20	1% 1%			
Alejandro Gonzalez	16		IMP-11	INSTALL REMOTE BUTTON TO ACTIVATE FIRE EXTINGUISHER	Executed
Alessia Rando	1		IMP-8	REPLACE MANUAL VALVE FOR AUTOMATIC	Executed
Alex Baharov	14		IMP-7	CHANGE THE MATERIAL OF THE SENSOR SUPPORT	Executed
Alexandre Perrier	2				
Alison Ribeiro	8	1%	IMP-2	SS IN THE MECHANICAL ROOM TO REDUCE NON-ADDED VALUE ACTIVITIES	Executed
Andrew Williams	1		IMP-1	REPLACE PAIR OF SUCTION CUPS BY ONE BIGGER	Executed
Armando Puffzis	1				
Augusto Cometti	5				
Camila Portela	8				
Portela(Supplier)	1				
Capitol	1				

Modal: Eduardo Oliveira - executed

N°	KAIZEN IDEA	STATUS
IMP-18	IMPLEMENT A SYSTEM TO MANAGE THE DOCKS	Executed
IMP-16	REPLACE PLASTIC BRACKETS BY METAL ONES	Executed
IMP-13	INSTALL SENSOR TO TURN THE LIGHTS ON AUTOMATICALLY	Executed
IMP-11	INSTALL REMOTE BUTTON TO ACTIVATE FIRE EXTINGUISHER	Executed
IMP-8	REPLACE MANUAL VALVE FOR AUTOMATIC	Executed
IMP-7	CHANGE THE MATERIAL OF THE SENSOR SUPPORT	Executed
IMP-2	SS IN THE MECHANICAL ROOM TO REDUCE NON-ADDED VALUE ACTIVITIES	Executed
IMP-1	REPLACE PAIR OF SUCTION CUPS BY ONE BIGGER	Executed

Timer: 00:00,00

After
(0s – automatic)

5 Kaizen Idea & BI application

Client : Global player in the Food Sector



Kaizens are Opened



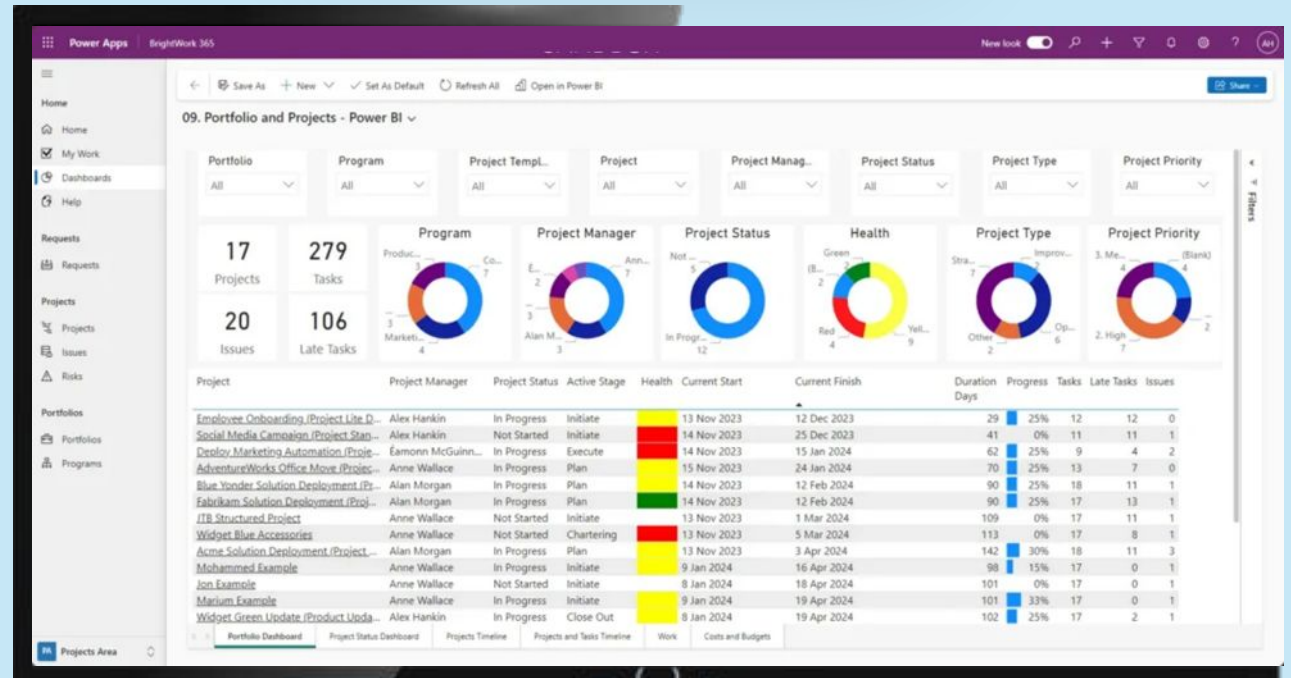
Graphics are automatically displayed



Graphics are automatically displayed



Data is sent to corporate datalake and Corporate Power BI is automatically update



3 key take outs to impact your Operations

OpEx is a must to bring value (start asap if not yet)

- Get the impact (\$) in all your value drivers
- Make sure that the program eliminate functional silos
- Learn from others and customize to your needs/culture

Digitize OpEx is a must (start asap if not yet)

- Accelerate the impact of OpEx (\$), powered by digital
- Integrate your Digital Roadmap into your OpExc making sure that your 4.0/digital deployment in manufacturing comes via OpEx and therefore driven by your losses and pain points

Don't create digital silos when digitizing OpEx

- Avoid fragmented software (that supports only one function, one level or one site only)
- Today's need is not tomorrow's need (and a software





Thank you!

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amit.rao@solvace.com

Follow us on



For EFESO contact
alec.glennie@efeso.com | www.efeso.com

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MANAGEMENT CONSULTANTS