



Happy Life with Digital Twins*

Como Vivir Mejor con Gemelos Digitales

DYNATEC

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Director
Dynatec, S.A. / Talent Swarm

Bilbao, June 13 2022

imic
industrial maintenance
innovation **conference**

*AKA “Industrial Metaverse”





FAST
QUICKLY
RAPIDLY
SUDDENLY
PRESTO

FORTNITE

Ikea
THE WOODS OF EVERYDAY

EA
FIFA 21

Token

Avatar

Shoes

Nintendo





SHOW ME THE MONEY!

OPERATION & MAINTENANCE

80% of **T**OTAL **C**OST OF **O**WNSHIP

HIGH EFFICIENCY ASSET MANAGEMENT SAVINGS

UP TO **30%** OF TOTAL COST OF OWNERSHIP



Digital Twins

Gemelos Digitales



- A Digital Twin is a virtual copy or replica in digital format of something real (an object, a process, a service and even a complete plant) connected between the real and the virtual.
- To this copy we add data that comes from sensors.
- The data is stored, processed and analyzed with computer tools in order to get to know and predict the behavior of the real object.



KLM
787

Link Simulation & Training



ATAO OFFRART RIA
TAH BACRY

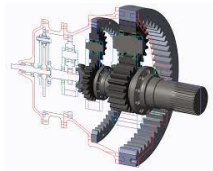
REMOTE CAMERA RIC-84

DATA SCREEN WITH MULTILINE TEXT

OS
MAM 23



Avatar "Tree of Life" - 2009



CAD MODEL

3D
Level 1



TIME

4D
Level 2



SUPPLIERS
& COSTS

5D
Level 3



FACILITIES
MANAGEMENT
IoT
PERSONNEL

6D
Level 4



PHYSICAL
SIMULATION
Cognitive

7D
Level 5

THE PROBLEM

7D

Sentient, Self-Diagnosing systems with streams of data from IOT that poll other similar parts for prognostic maintenance or recall (Jet Engine, GE Predix®)

SMART OBJECTS

6D

"Smart" Objects IoT (including humans) with profound details about each object for maintenance and service throughout entire lifecycle (PLM)



INFORMATION
LEDS FROM ONE

*OPERATIONS &
MAINTENANCE*



5D

Objects have discrete identity so that logistics, and pricing for procurement. Block Chain

4D

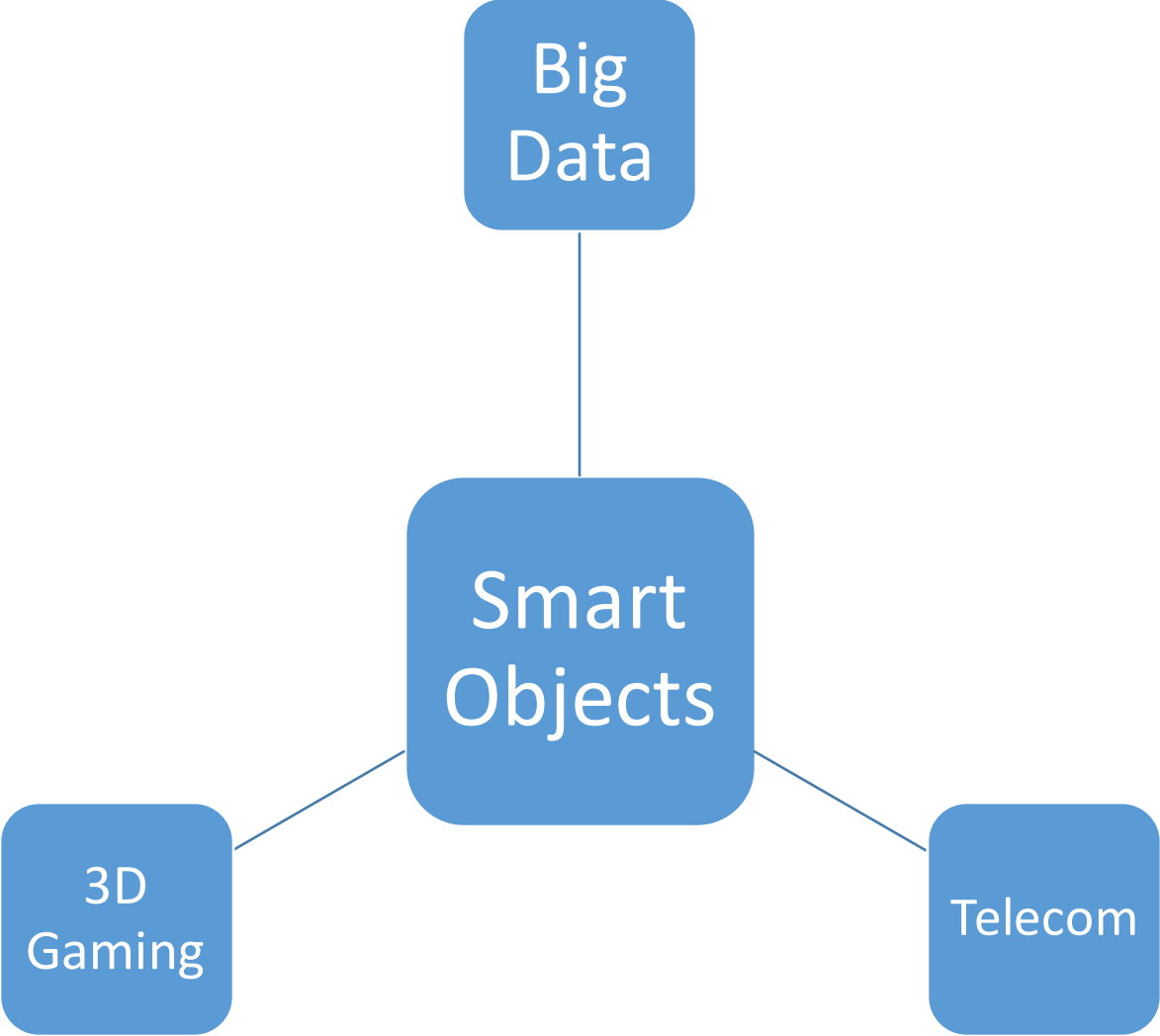
Time Element, animated or in real time

CONSTRUCTION
PLANS

3D

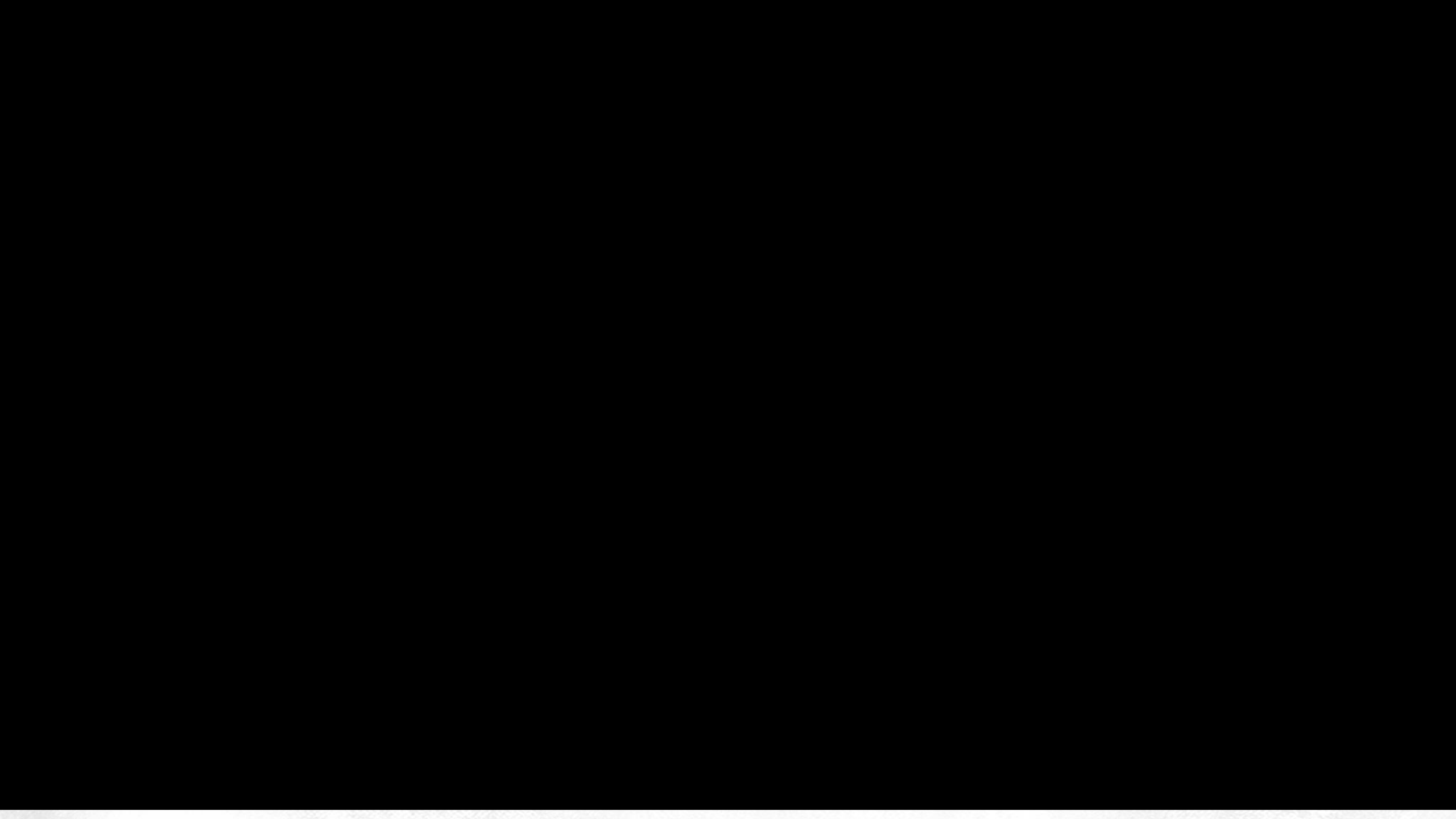
Gemoetry, lines, circles, volumes

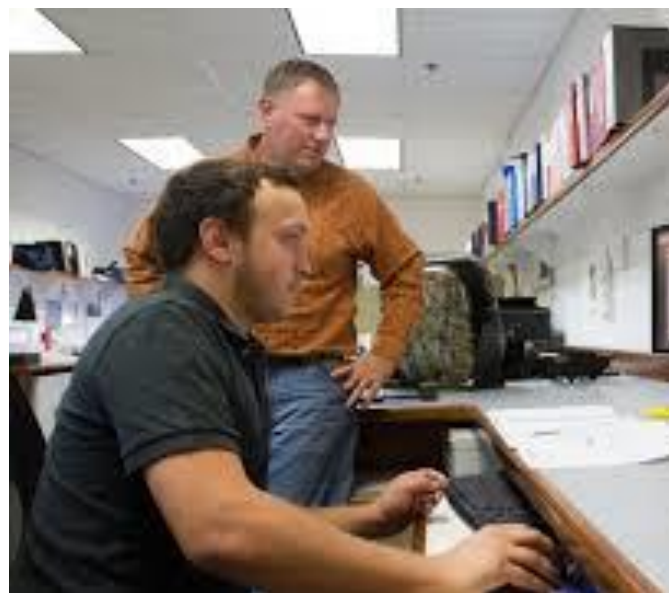


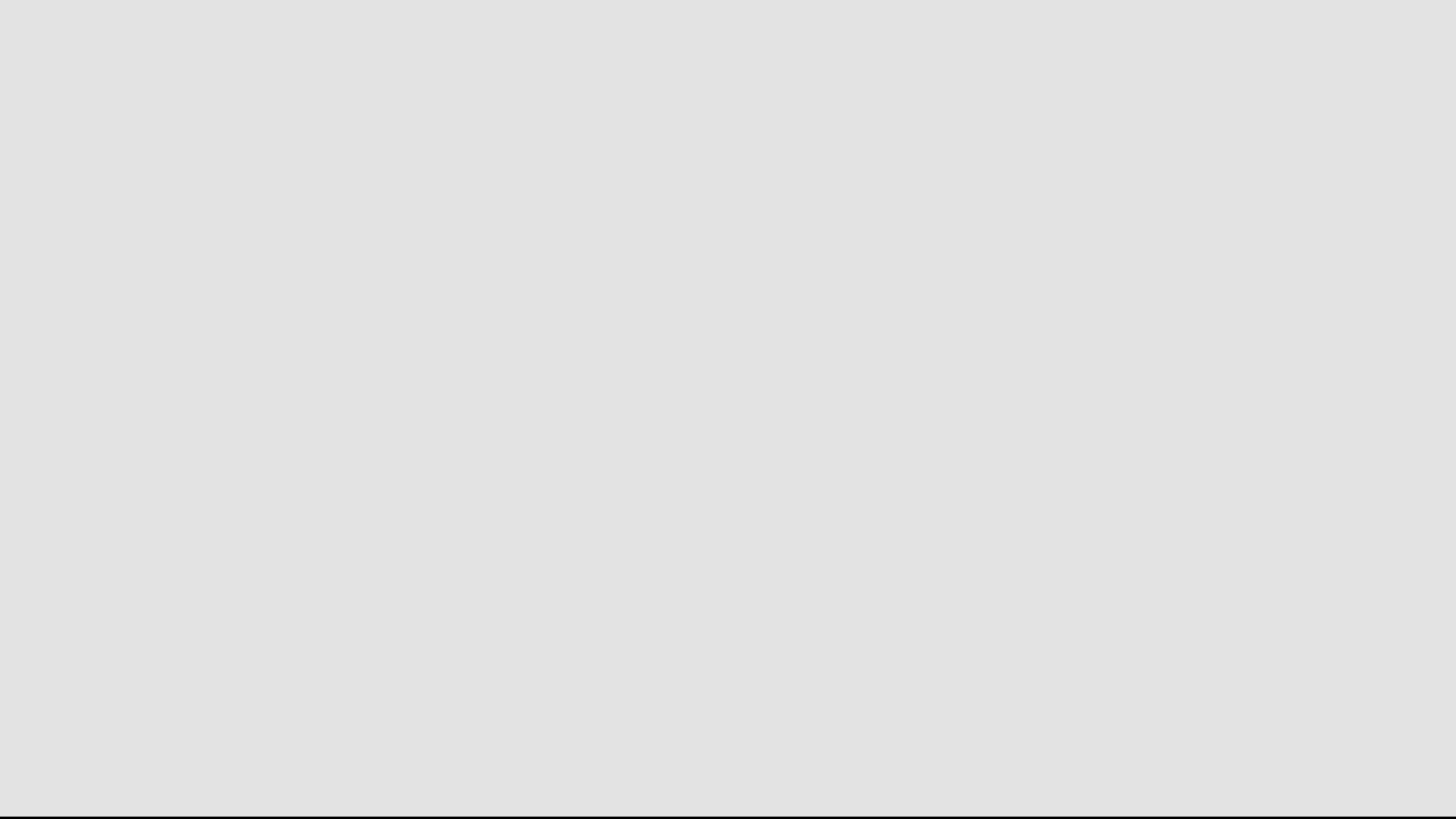


SMART OBJECTS

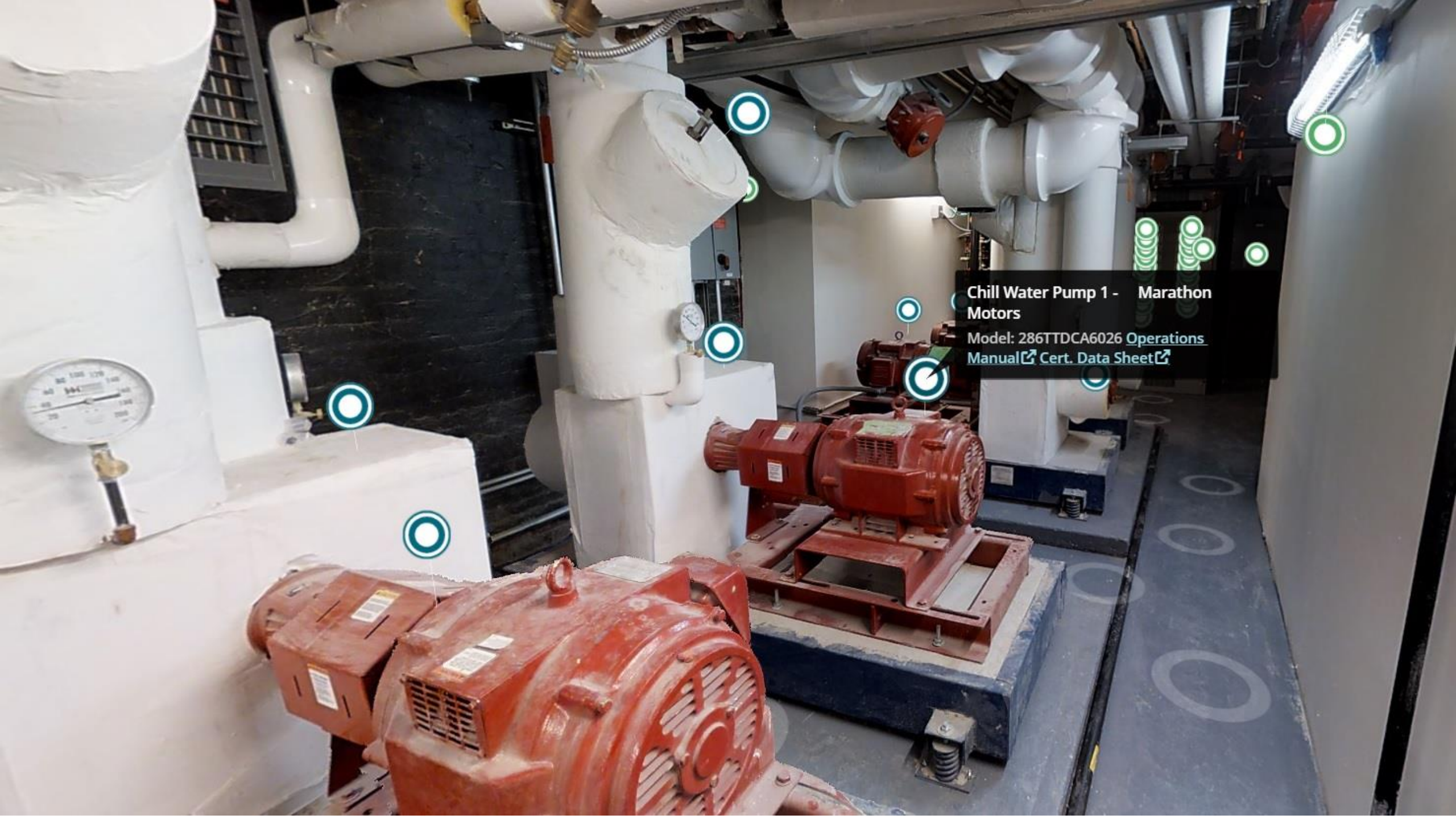












Chill Water Pump 1 - Marathon Motors
Model: 286TTDCA6026 [Operations Manual](#) [Cert. Data Sheet](#)



DATA: PaaS,
Open-Source,
Block Chain
secured, long
term Big Data
repository

SAVINGS:
PLM/BIM from
cradle to grave
for lower costs
and better
designs

MARKETPLACE/LOG
ISTICS: Millions of
parts with DRM, 3D
& metadata and
supplier links

COLLABORATION:
CWE to foster
collective
intelligence over
competition

HR+: Access to
Global talent in
real time



A

B

C

E

D



NATURE AT ITS BEST

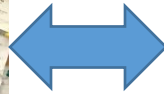


Once 3D Information, Accurate Engineering Plans and Virtual Visits are Available Securely to all Authorized Personnel, Remote Assistance for Collaborative Maintenance **TELEPRESENCE** can be Implemented Across the entire company.



Expert at Remote Location

[Link Here for Virtual Visit Example](#)



Local Technician using eyebee® Available Now 

Realwear hmt-1 Head Mounted Tablet Available Now



Available Late 2020: Trimble XR10 with Microsoft HoloLens 2

P



Figura 6. M configurado

Fuent



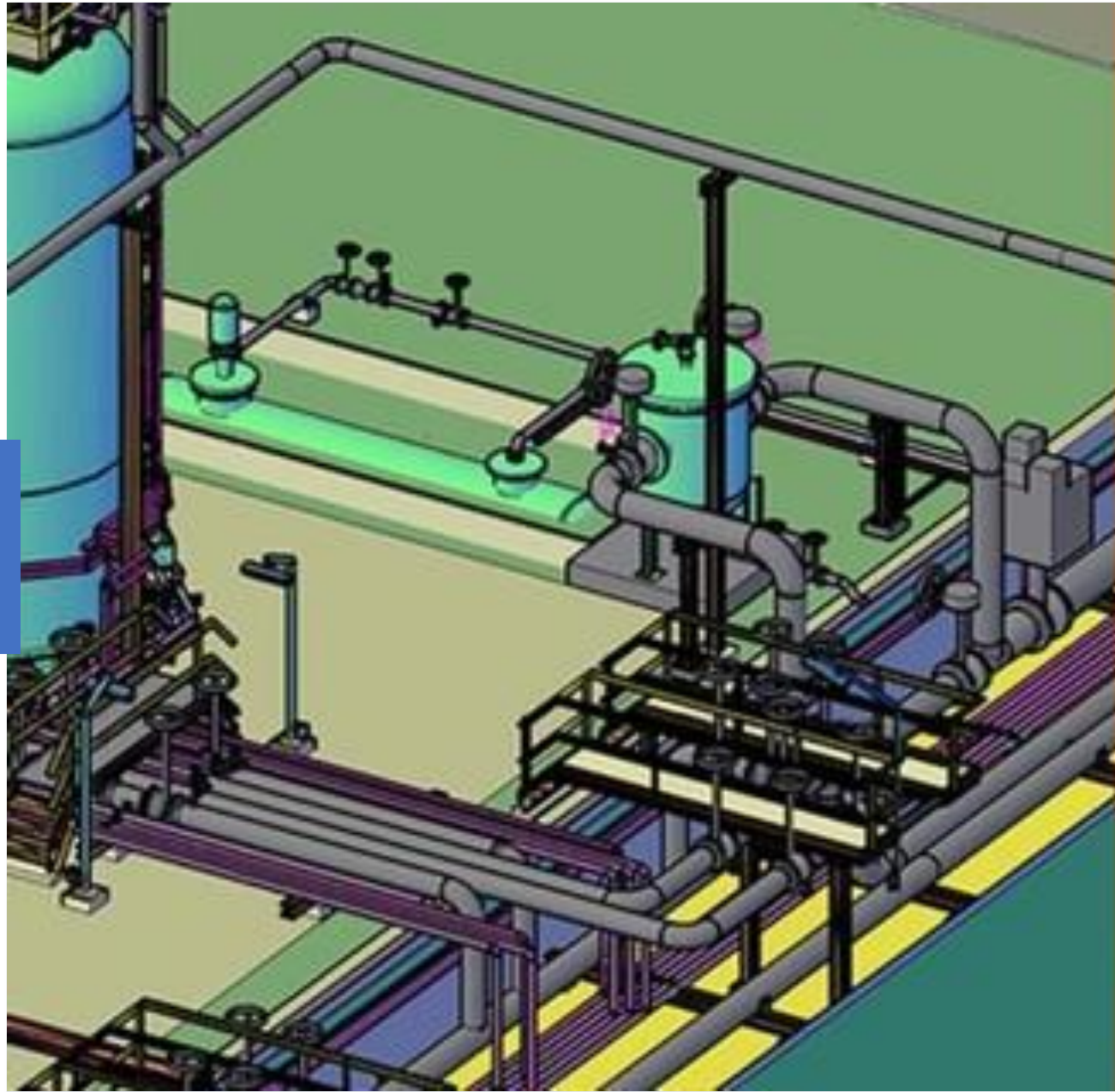
dos, bien

predictivo

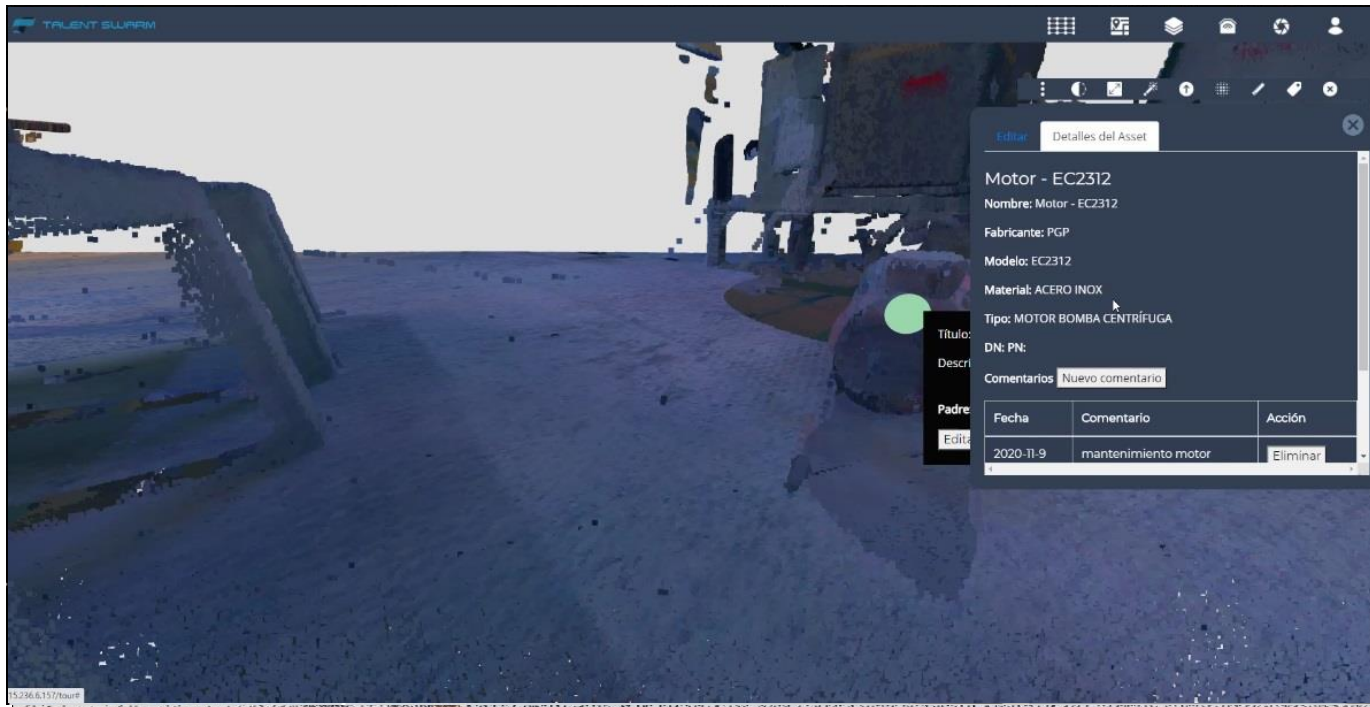
- Habilitar colaboración entre el personal y asistencia remota
- Formación, reclutamiento, simulación avanzada, etc.

Introducing Dynamics 365 Remote Assist for HoloLens 2 and Mobile Devices





Step by Step Creation of Digital Twins for Success



- Create multidepartment group
- Collect existing CAD designs
- Laser scan / 360 HiRes photo
- Create 3D models for As-Built
- Connect equipment inventory with their location in virtual environment
- Connect sensors on critical equipment
- Connect with SCADA
- Connect WiFi, geoposition, etc.

M O D E L I C A



IFC 4.0

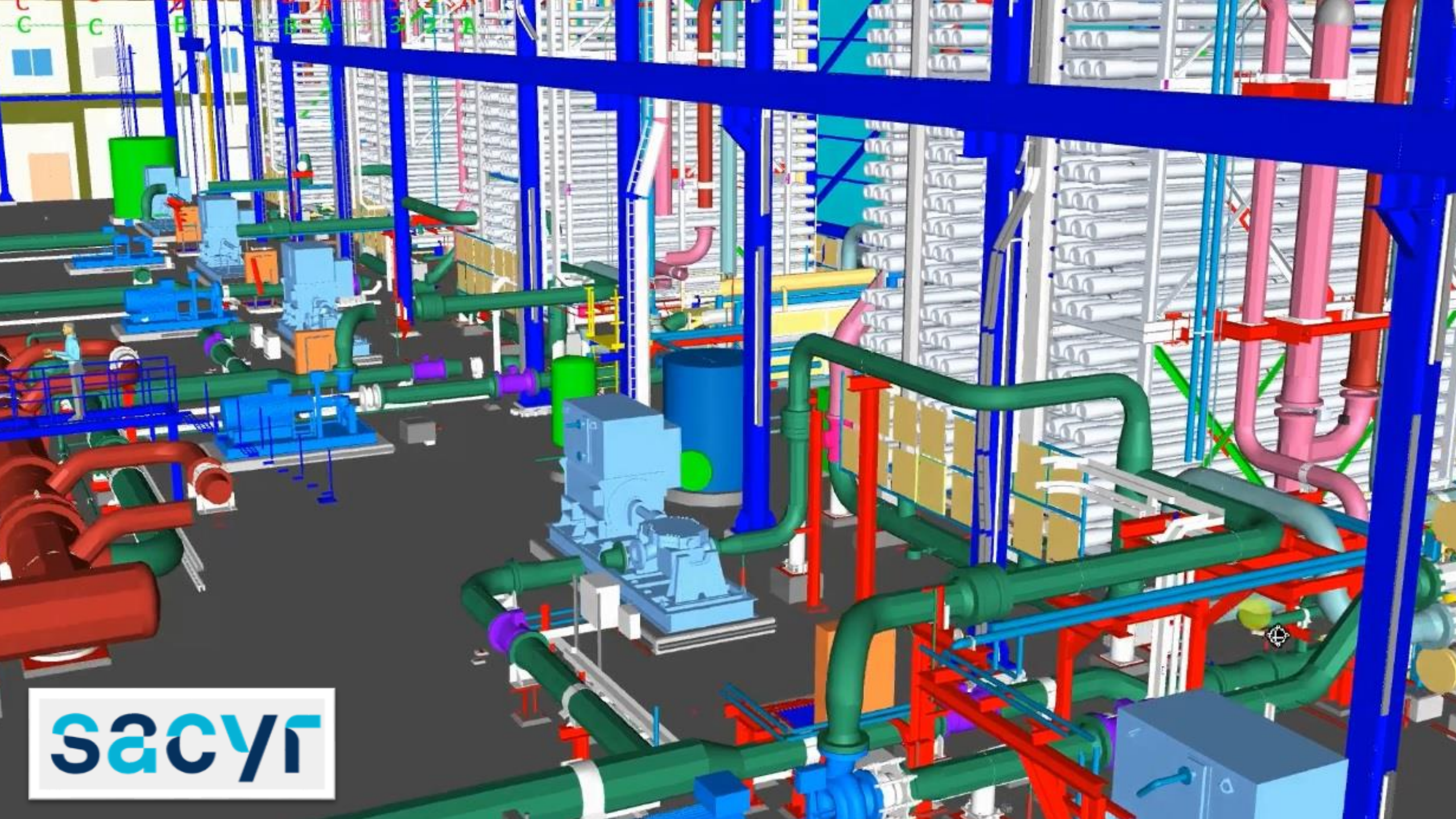




CFIHOS participants, 29 May 2018

CFIHOS (Capital Facilities Information HandOver Specification) for process industries





sacyr



TALENT SWARM 3D PLANT VIEWER

TS SITE ADMINISTRATOR



Account Settings

Ravago

Site Germany - Schkopau

Projection 2020



You are about to
experience your plant like
never before.

Sign in

Email

test@mail.com

Password

SIGN IN

[Forgot your password?](#)

Don't have an account? [Sign Up](#)

ID: DF299



MARTIN, Jim

AB Class operator

DF299

File Settings View Help

Address: Nygårdsgt. 5
5020 BERGEN
Phone: +47 55 58 69 01
+47 971 55 134

Postal Address: Postboks 7800
5020 BERGEN

E-mail: Ingar.Myking@adm.uib.no

Good morning Jim

I have received an error message in the A64 sector from the RDT665 machine. There is an error in +8978SX valve. It would be necessary to replace it for a +892379CD valve.

I'm on my way

Private

General

Send

CONTACT

BACK



PREGUNTAS?
QUESTIONS?

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Talent Swarm / Dynatec, S.A.

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