



ACCELERATING
INNOVATION

The Ballroom of Pharmaceutical industry – EVF Sanofi success story

Agenda

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Sanofi Overview

EVF Sanofi Objectives

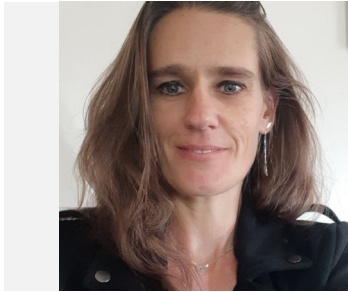
Challenges in conventional approach

Ballroom concept in detail

Module Management System

Benefits of Ballroom concept

PK controller



Aurélie PROTON

EvF Project - Plug and Produce Automation Lead / SANOFI



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Sr. Automation Consultant / Emerson



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International Project Director / Emerson



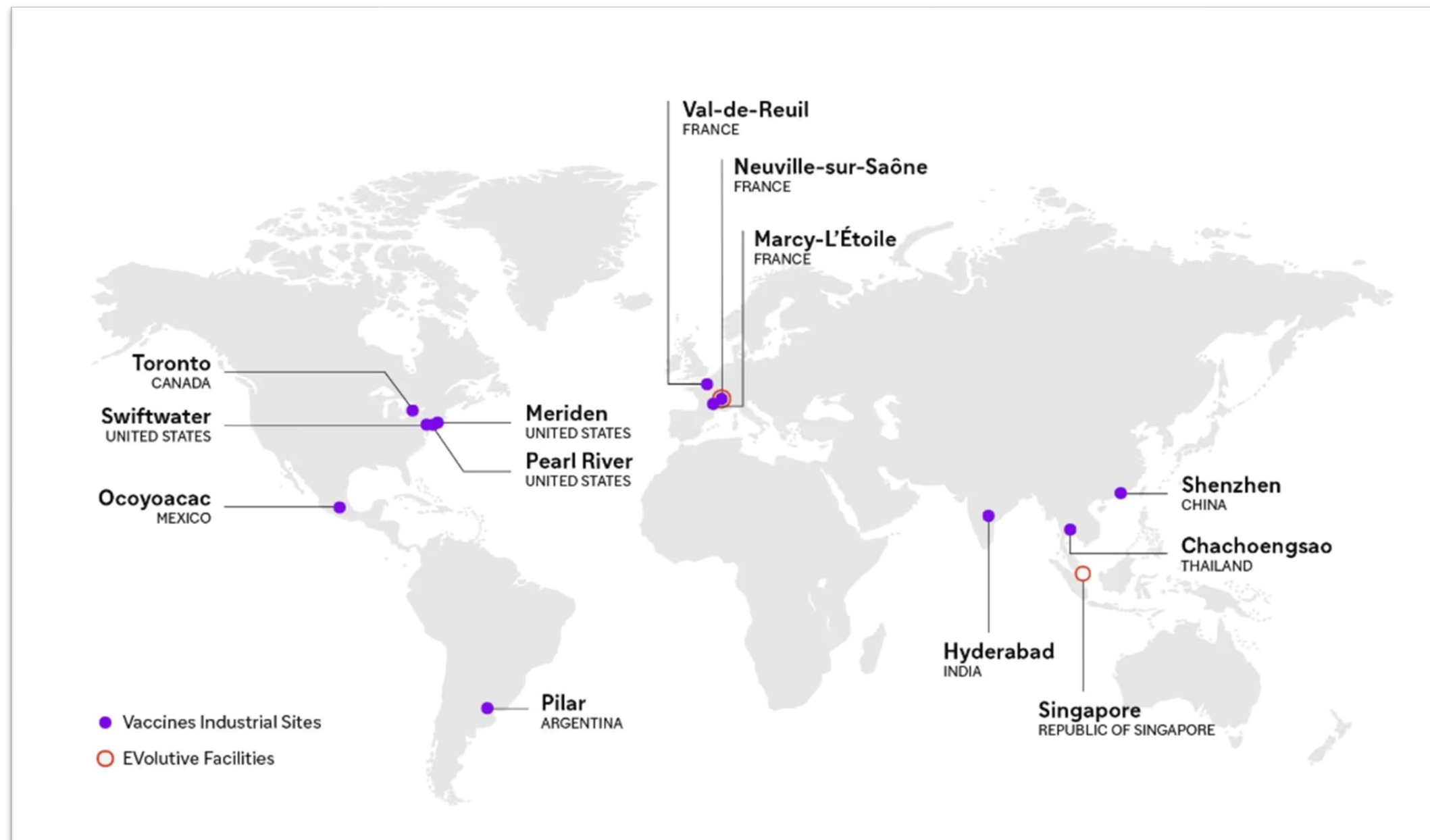
Sanofi S.A.

- Headquarters: Paris, France
- Founded: 1973 Global
- Presence: Operates in over 100 countries with more than 100,000 employees worldwide.
- Mission: To chase the miracles of science to improve people's lives.
- Vision: To turn the impossible into possible for people and communities around the globe
- Core Therapeutic Areas: Cardiovascular, Central Nervous System, Diabetes Internal Medicine, Oncology Thrombosis, Vaccines Key

sanofi



Sanofi World Map



EVF Sanofi



Key Highlights:

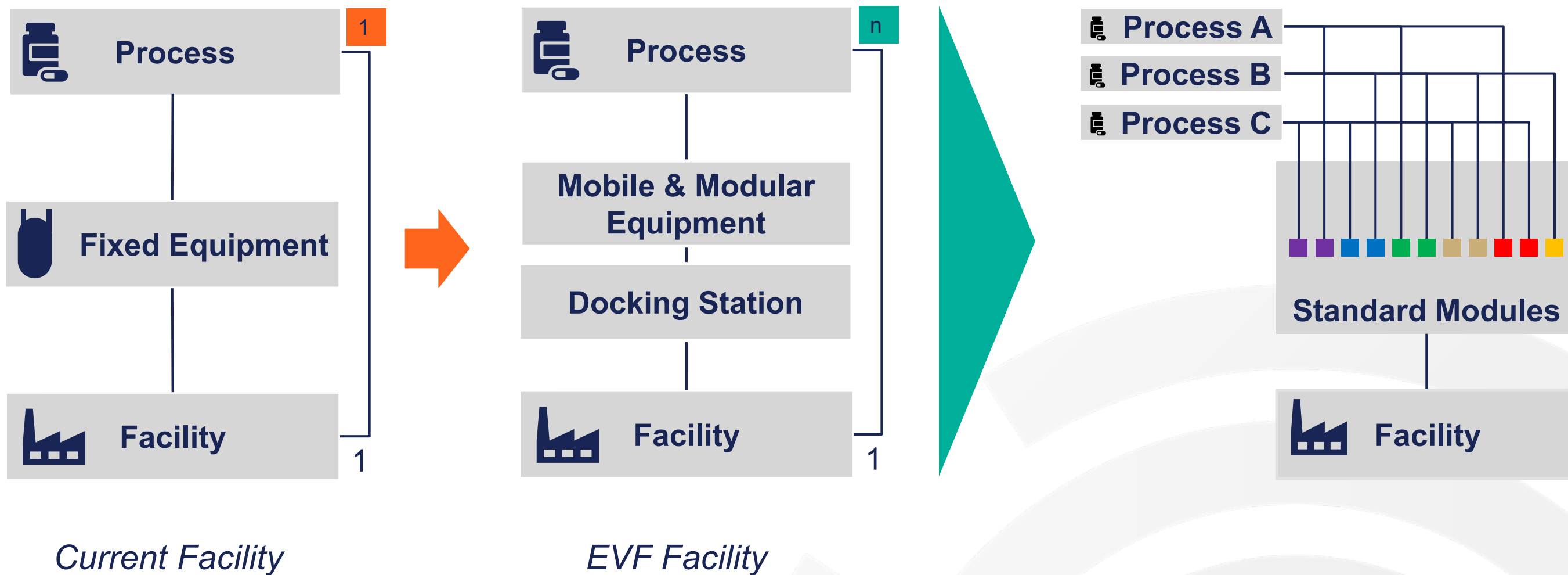
- Provide comprehensive automation solution which can support production of *up to four vaccines simultaneously*
- Provide *easy integration* of different modules (skids vendors)
- **The Ballroom design** – never done before in pharmaceutical industry
- Provide *one software solution* for two sites with English (SG) and French (FR) with single click setting enabled at deployment
- Provide automation solution with **Module Management System**
- **Flexibility** of reassembling equipment train with help of docking stations
- Accept **differences** of different module vendors, provide framework instead of standards

Challenges with traditional approach

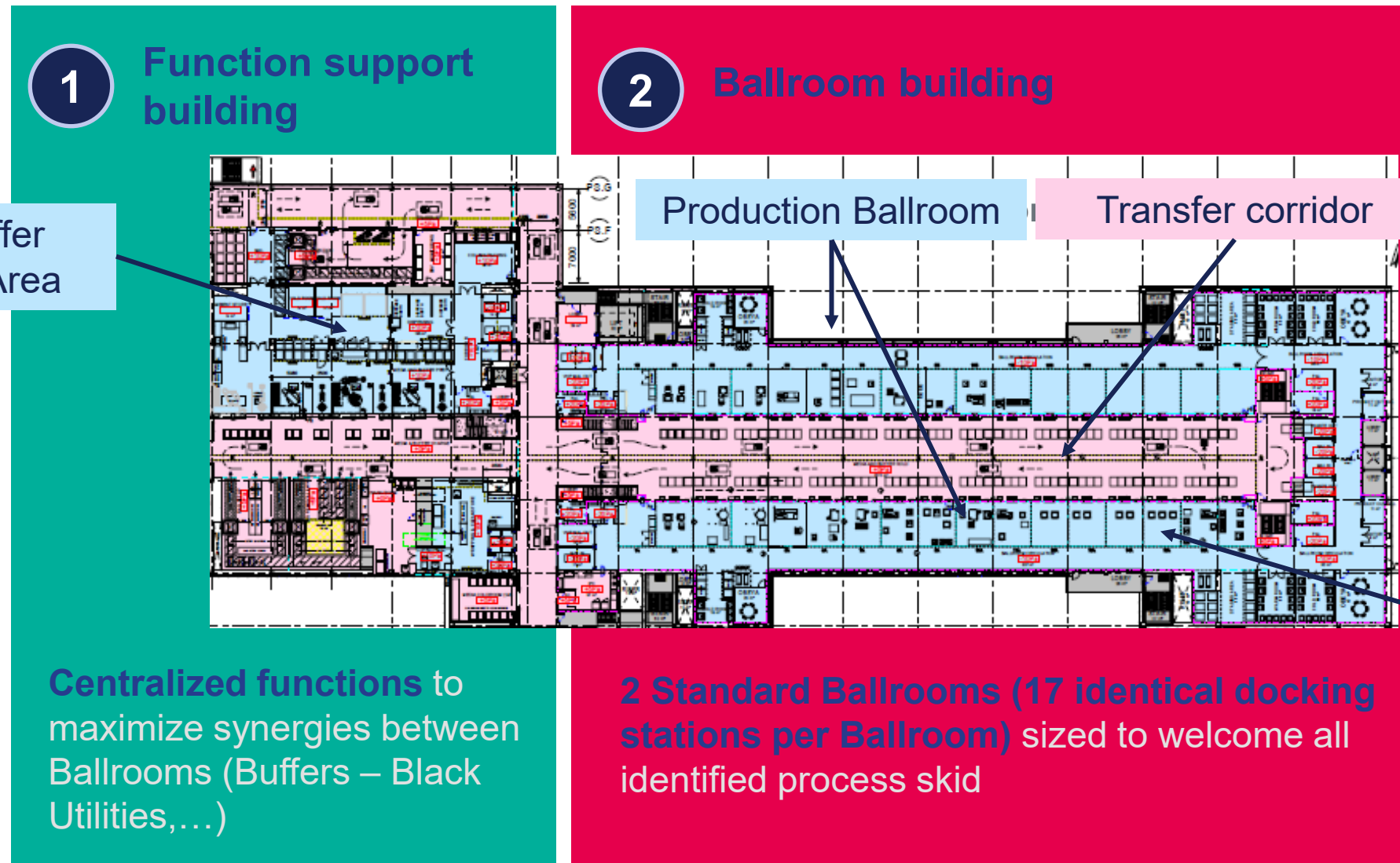
- Typically, stick-built **lacks flexibility** of adding, removing equipments
- Single use system provide flexibility however **increases cost per batch**
- Traditional systems are design to produce **not more than one product** at any given time
- **Difficult to upgrade** the technology
- Integration of new equipment **not always easy** can trigger big changes in the facility
- Increased complexity in cleaning activities due to dependencies
- Difficulty in **scale-up** the number of batches



Ballroom Approach vs Industry trends



EvF DNA reflected in Advanced Ballroom Design



Equipments in the Ballroom



A Module is a **processing physical equipment** that includes:

- processing components (valves, pumps, instruments,...),
- manufacturing control components (Controller, HMI,...)
- Control software
- to **perform autonomously a process stage.**



The **transversal physical equipment** with their control embedded into the DCS :

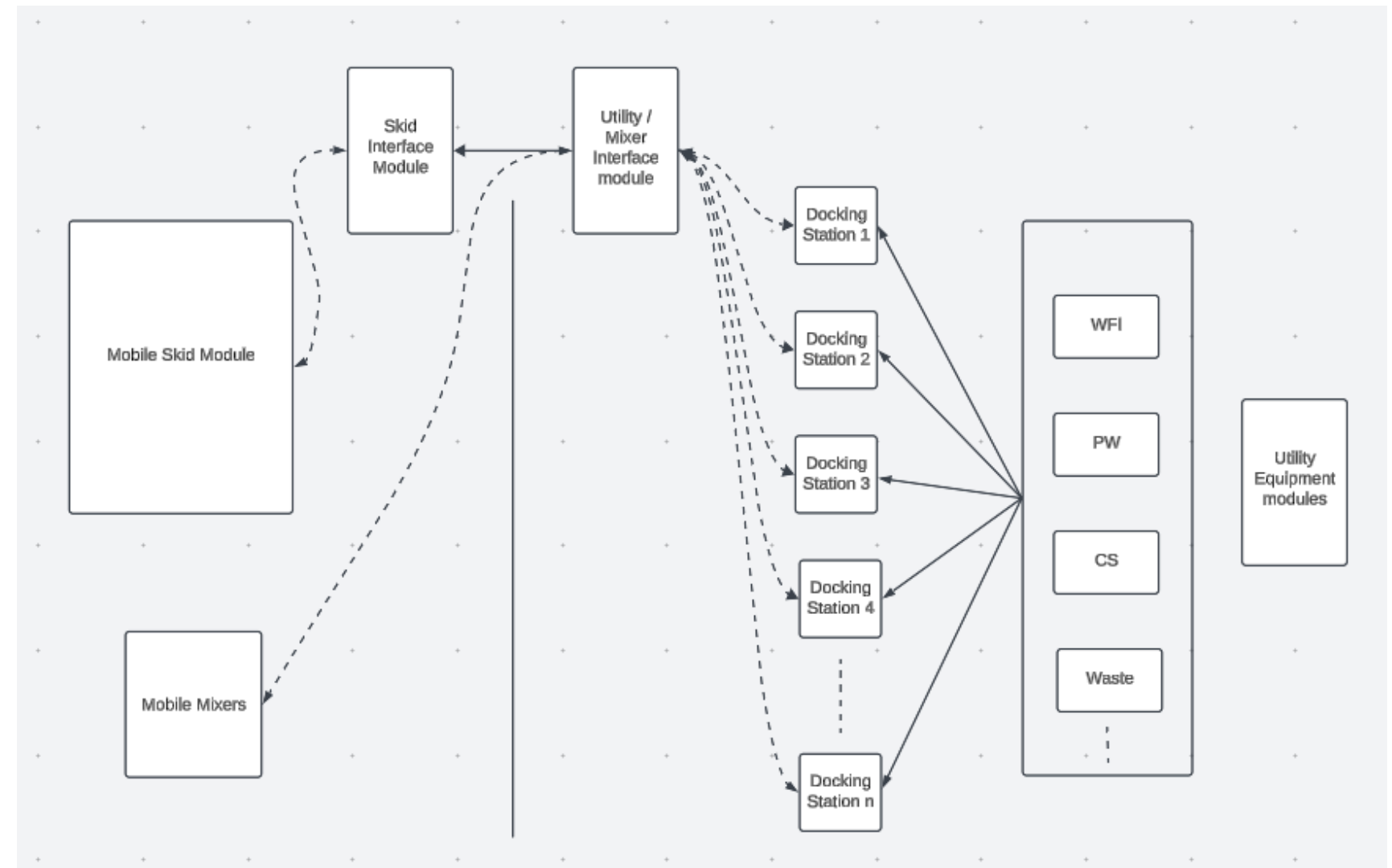
- Utility panels to supply standard utilities.
- Shared equipment like pump, mobile mixer or temperature control unit. Shared equipment are movable and can be used by any kind of module



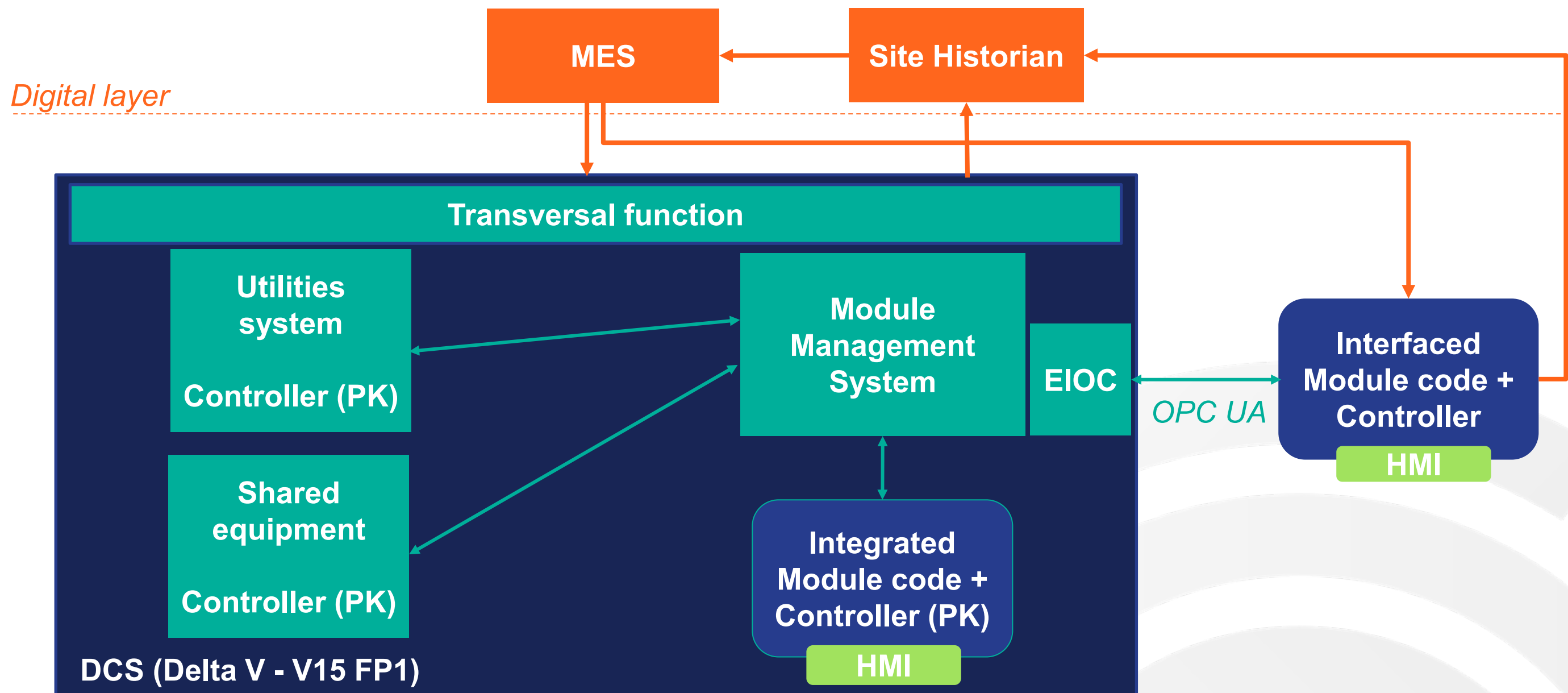
=> The Module Management System (MMS) is the link with all these equipment.

Module Management System (MMS)

- Module Management system is core of the Ballroom concept
- Mobile skids are equipped with either PLC/ PK controller
- Controllers are powered by connections on docking stations
- PK receives information from MES about Docking station ID, Product info, Skid IDs, Shared Mixer IDs etc.
- PK establishes dynamic connections to all critical parameters
- All WFI, PW, CS, Waste etc. request & Mobile mixer requests are handled through dynamic handshakes

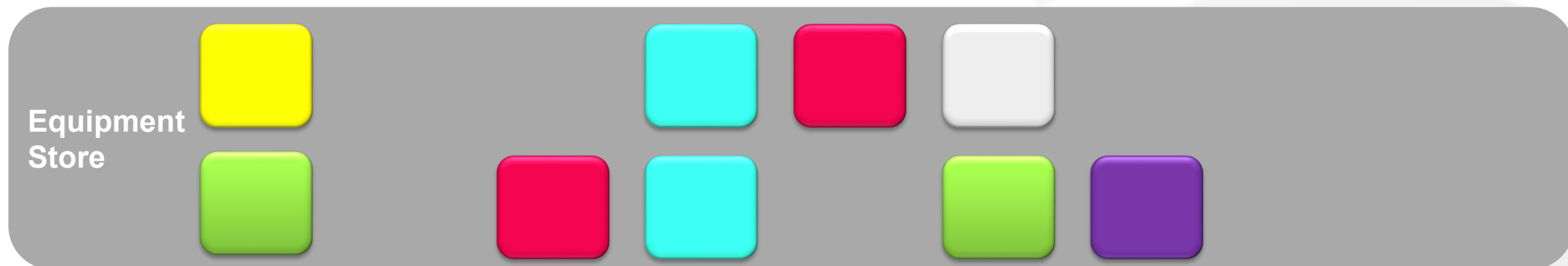
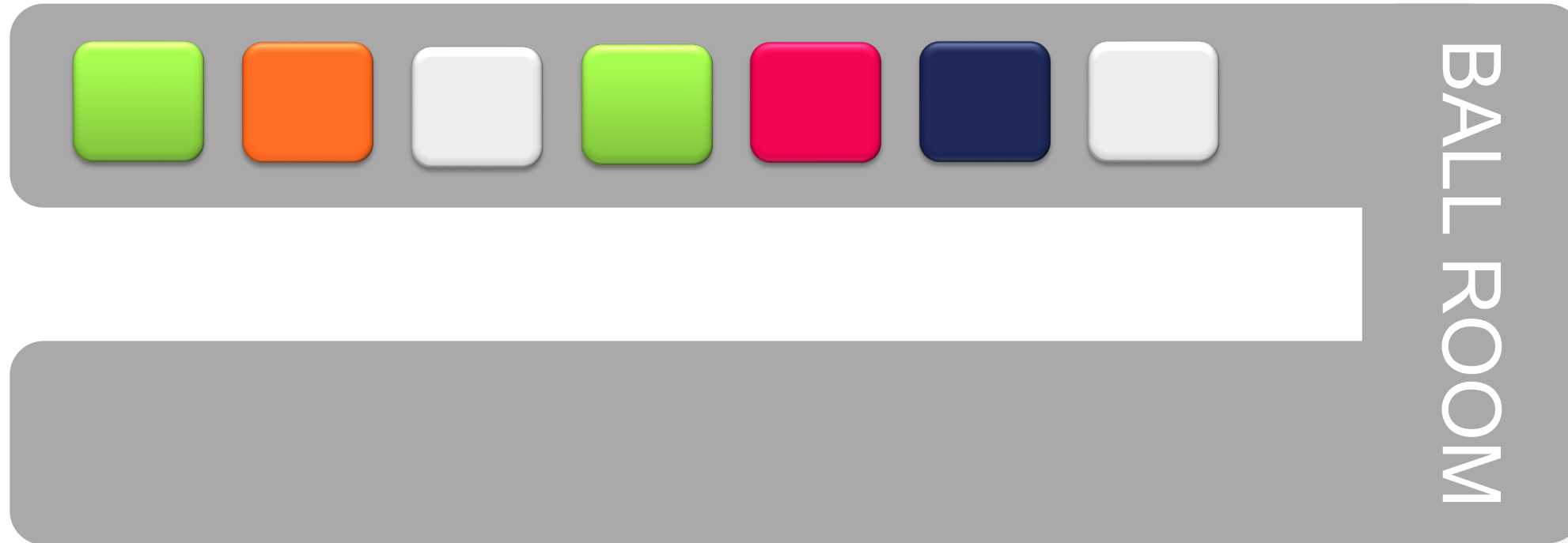


Integration in a complete Digital Architecture



Running Multi-Process

*Equipment
train
for process A*

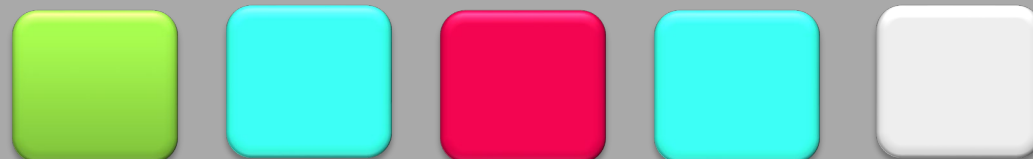


Running Multi-Process

*Equipment
train
for process A*



*Equipment
train
for process B*

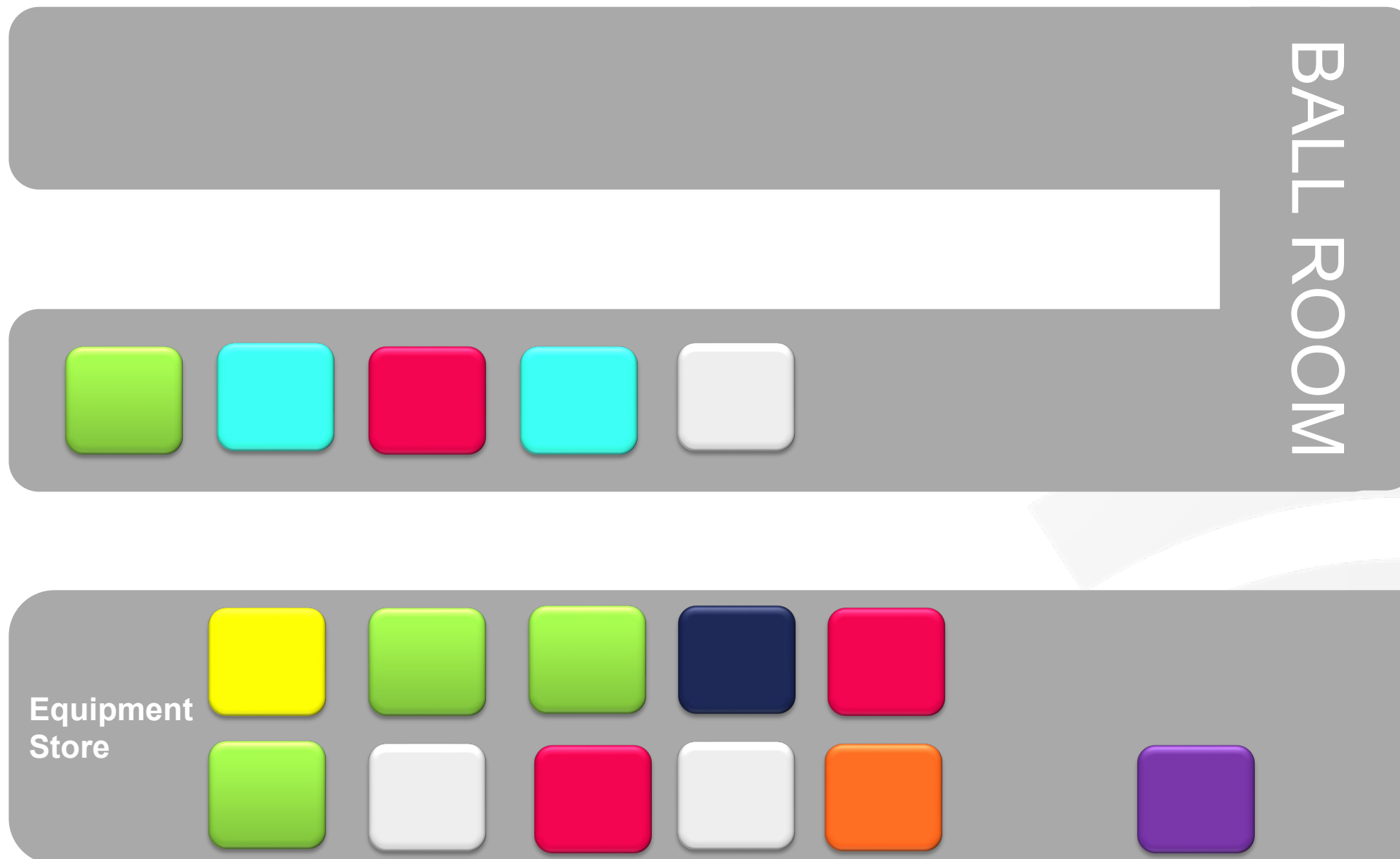


Equipment
Store



BALL ROOM

Running Multi-Process

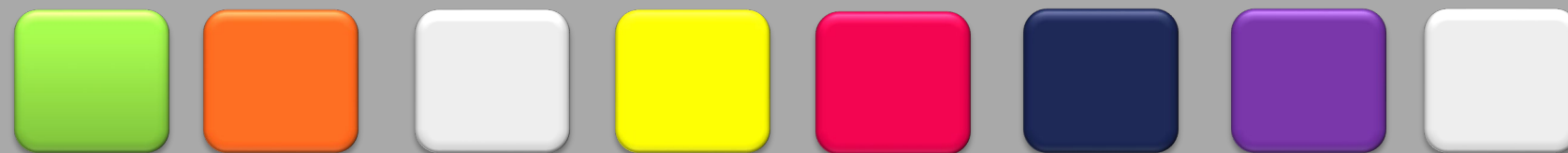


*Equipment
train
for process B*

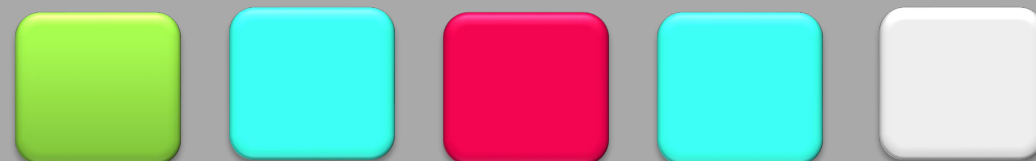
Equipment
Store

Running Multi-Process

*Equipment
train
for process C*



*Equipment
train
for process B*



Equipment
Store



BALL ROOM

PK DV15 FP1 is all you need..

- First Project to use native PK controller port for Profinet
- No IO cards truly Softwarization
- Through the Profinet network, all field devices connect with the DeltaV PK Controller. This facilitates automatic device connections when the skid is connected to the utility panel and main production line.
- Depending on the needs and type of product, movable skids can be linked to and separated from the main production line.
- Once skid is connected to docking station all data exchange happens through Emerson delivered Module Management System
- MMS– A special digital connection implemented in DeltaV modules which offers seamless connection & data exchanges with MES and Skids



Benefits of Ballroom concept

- Possibility of taking **more products within same manufacturing space** (Ballroom) at the same time with the help of docking stations and movable skids
- **Easier to adapt** the number of production batches to meet market demand as equipment can be easily moved away and stored separately and can be connected back when needed.
- As equipment are movable it can be **efficiently used** for other required processes which can help **increase the return on the investment**
- **Just in time** utilization of equipments
- Setting the facility around the equipment **vs** Setting equipment in facility





EMERSON EXCHANGE 2025

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Thank You