

Industrial Intelligence Solutions

UNS is Powerful
for Industry 4.0



ectobox



Consulting
& Engineering Services



HIVEMQ

INTRODUCTIONS & AGENDA



*The **Unified Namespace** is Powerful for Industry 4.0, But How Does it Work?*

- 1) Introductions
- 2) Business Challenges
- 3) What is the UNS
- 4) Apply it to Manufacturing
- 5) Examples
- 6) Stop & Review
- 7) How to Execute
- 8) Q&A



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MANUFACTURING CHALLENGES



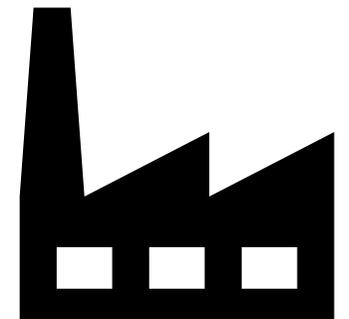
Manufacturing and Industry:

- More Competitive
- More Expensive
- Limited Workforce
- Workforce Traits
- Supply Chain Disruptions
- More Orders, Economy Coming Back
- Inflation
- More Demanding Customers

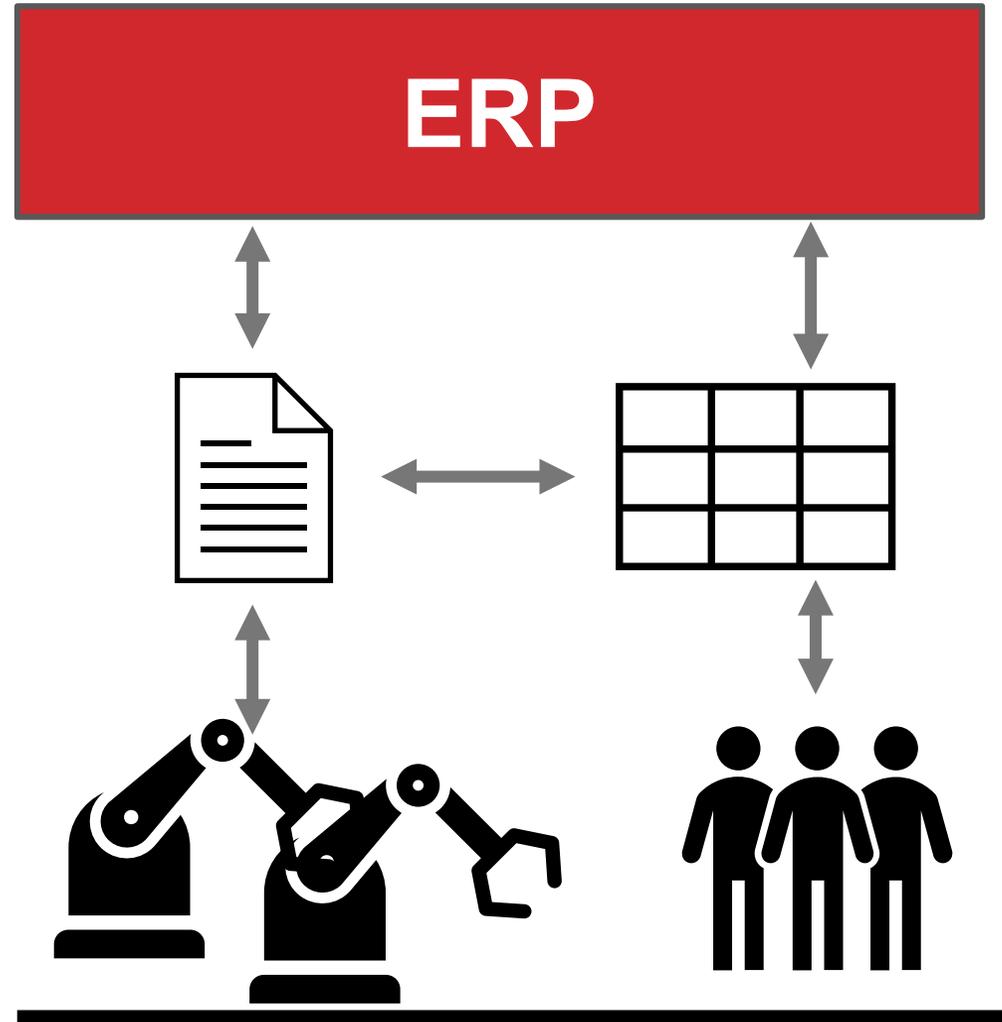
In the Plant:

- Machine Downtime
- Production Throughput
- Quality
- On-Time Delivery
- Recruiting
- Retention
- Revenue & Profit
- Company Valuation

Need Data → Deeper Visibility into the Factory Floor



CURRENT STATE



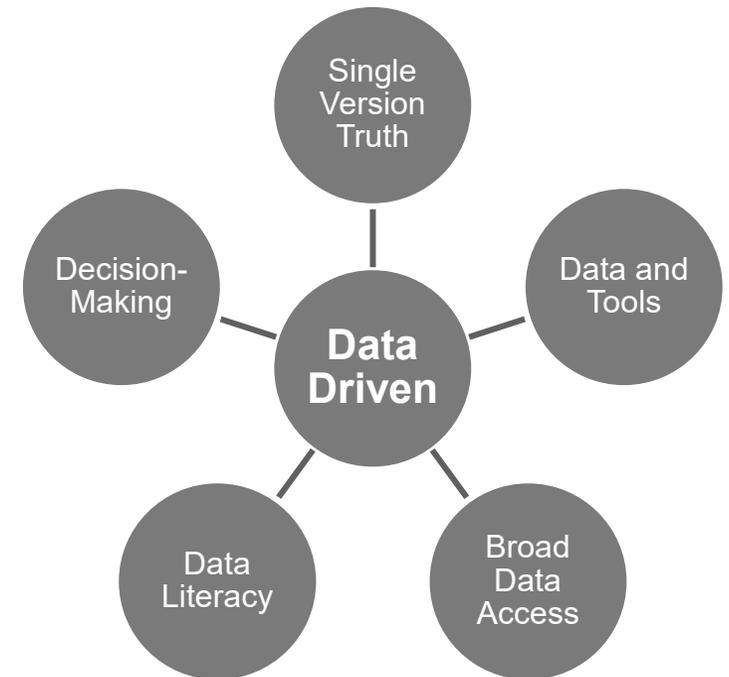
DATA-DRIVEN MANUFACTURING



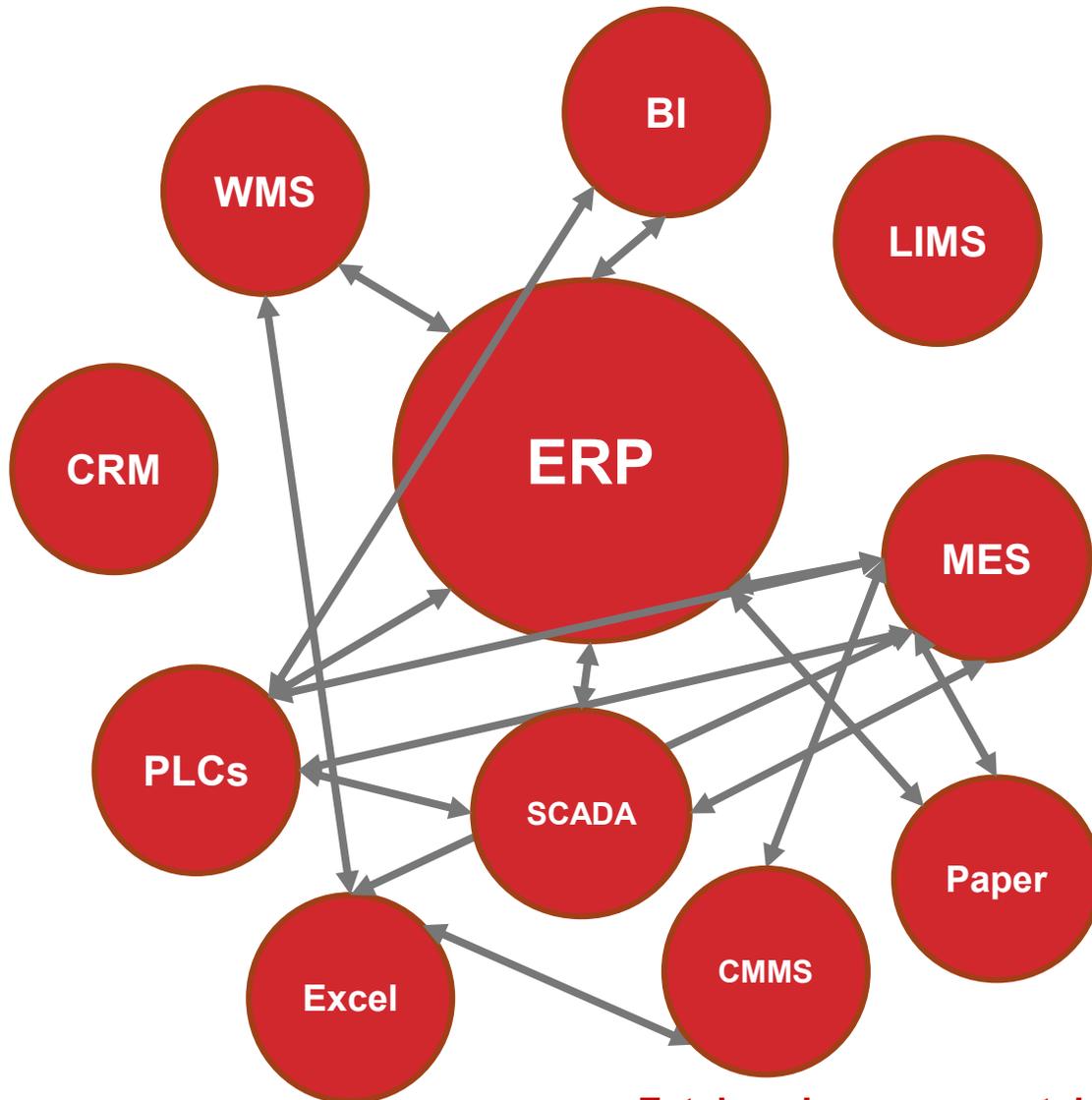
Holy Grail

- Everything and Everyone is Plugged into Network
- Layers of Business are Integrated and Operate Based on Data and Information from All Other Layers
- Stakeholders Know the State of the Business in Real-Time
- Stakeholders Know the Future State of the Business in Real-Time

Become a Data-Driven Manufacturer

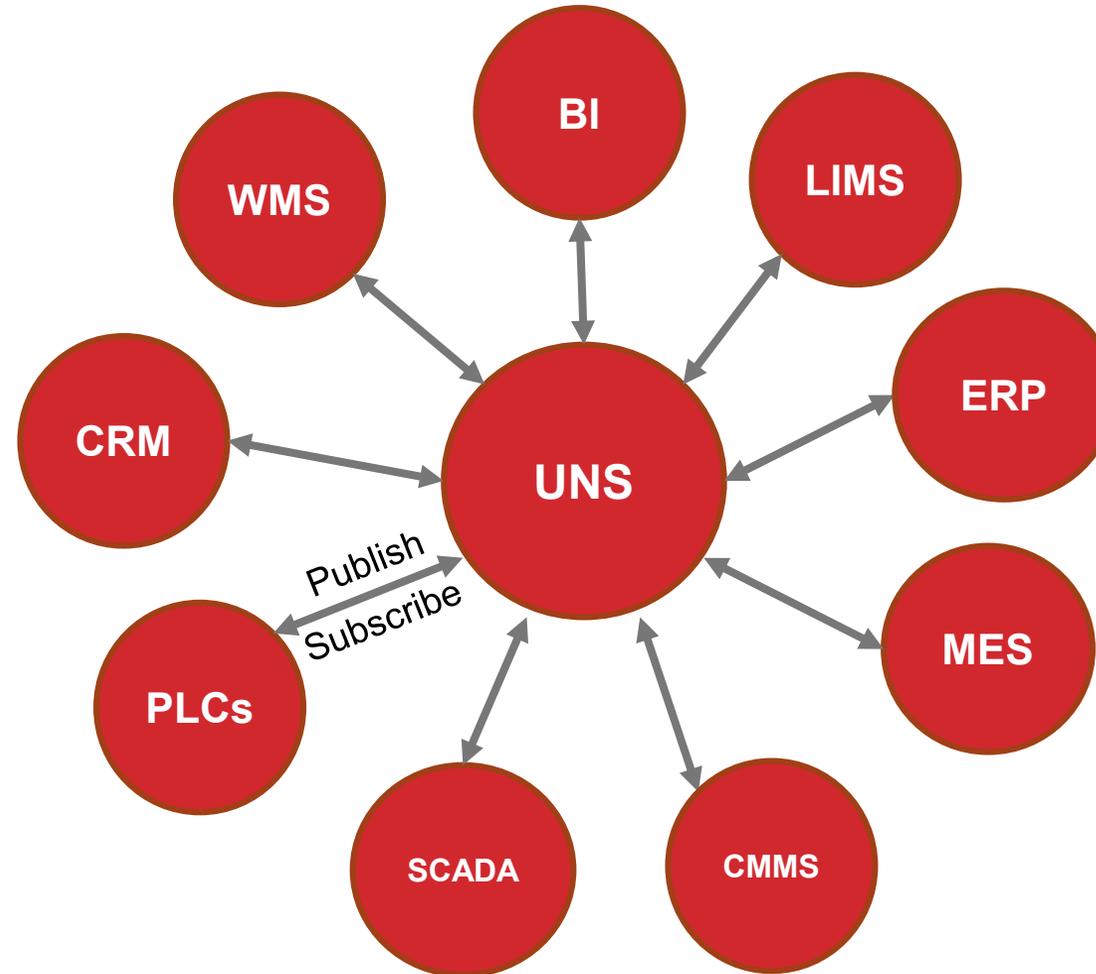


CURRENT STATE



- Discrete connections between many systems
- Difficult/Expensive to change systems
- No real-time visibility
- No standards for data
- Silos of data
- Data trapped in PLCs and machines
- Hidden Factory / Dark Data

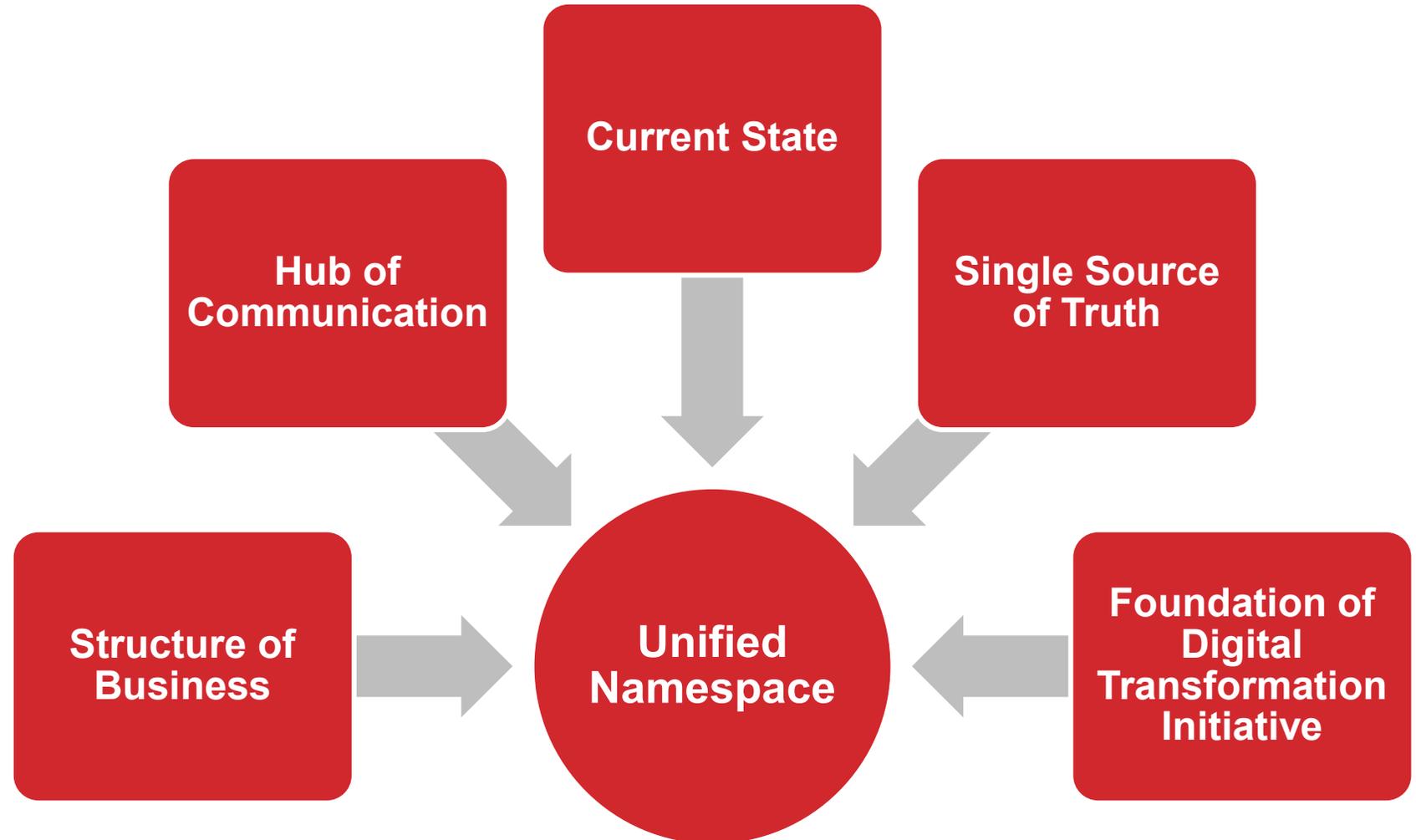
FLEXIBLE ARCHITECTURE



UNS – WHAT IS IT?



Namespace - a system to identify and uniquely refer to related concepts or objects



UNS – WHAT IS IT?



Unified Namespace

- Enterprise
 - Site
 - Area
 - Line
 - Cell

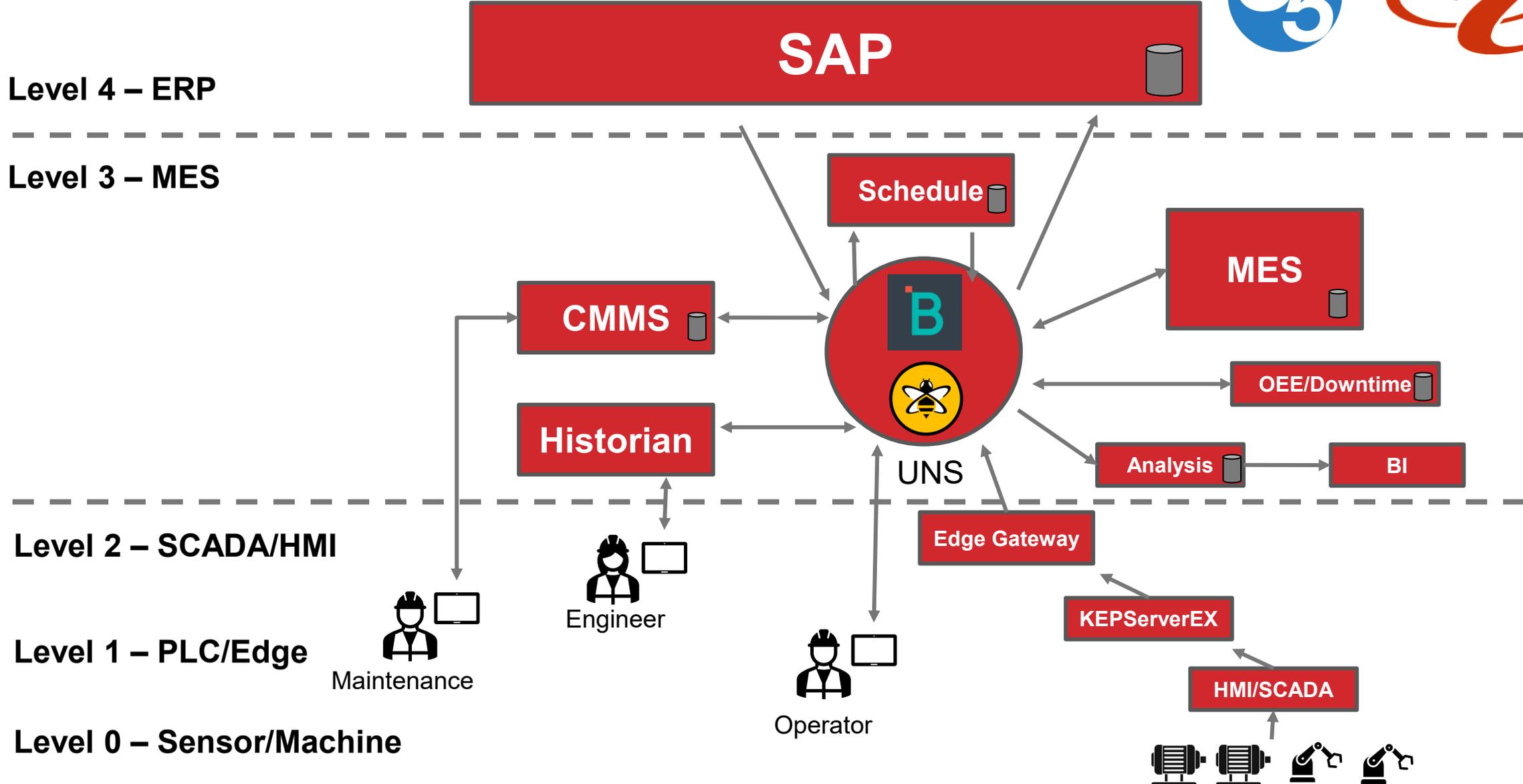
Example

- Coca Cola
 - Pittsburgh
 - ERP
 - Work Order
 - Routing
 - Schedule
 - Bottling
 - Line 1
 - Process Control
 - PLC 1
 - PLC Tags
 - Line 2
 - MES
 - OEE
 - Downtime

* From ISA-95 Part 2



MANUFACTURING EXAMPLE



EXAMPLES



Examples

UNS EXAMPLES



Site Overview

Tag Browser	
Tags	UDT Definitions
Tag	Value
Enterprise	
Site 1	
Area	
Line 1	
Line 2	
Line 3	
CRM	
Quote	
Parameters	
company	Strickland Propane
contact	Hank Hill
Dataset	Dataset [1R x 7C]
description	Standard Orange Juice
item	OJ2000
number	SO39095
quantity	200
uom	cases
ERP	
Purchase Order	
Parameters	
company	Sensient Food Colors
contact	Bryan Adams
Dataset	Dataset [1R x 7C]
description	Juice Color
item	Color
number	PO58594
quantity	500
uom	gal
Work Order	
Parameters	
customer	Inventory
Dataset	Dataset [1R x 7C]
description	Standard Blue Juice
due date	2022-08-27 11:05:10 PM
item	BJ1000
number	SO32897
quantity	4,800
uom	cases

Line Overview

Tag Browser	
Tags	UDT Definitions
Tag	Value
Enterprise	
Site 1	
Area	
Line 1	
Parameters	
Area	Area
assetID	ZAF3V5FRBM
lineNum	1
Site	Site 1
Cell 1	
Cell 2	
Cell 3	
Infeed	17,950
MES	
Mode	
Outfeed	14,250
Run OEE	
Scheduled Rate	1,000
Shift OEE	
Standard Rate	1,100
State	
State Enum	running
Waste	3,700
Line 2	
Line 3	
CRM	
Quote	
ERP	
Purchase Order	
Work Order	

Cell Overview

Tag Browser	
Tags	UDT Definitions
Tag	Value
Enterprise	
Site 1	
Area	
Line 1	
Parameters	
Area	Area
assetID	NSEVRezNbe
lineNum	null
Site	Site 1
Cell 1	
Cell 2	
Cell 3	
Parameters	
Area	
assetID	
lineNum	
Site	
CMMS	
Infeed	17,680
Outfeed	14,250
State	3
State Enum	unplanned
Waste	3,430
Infeed	17,950
MES	
Mode	1
Outfeed	14,250
Run OEE	
Scheduled Rate	1,000
Shift OEE	
Standard Rate	1,100
State	1
State Enum	running
Waste	3,700
Line 2	
Line 3	
CRM	
Quote	
ERP	
Purchase Order	
Work Order	

WAIT!!! WHY IS THIS VALUABLE?



Short Term

Down-Time
Production
Quality
Etc.

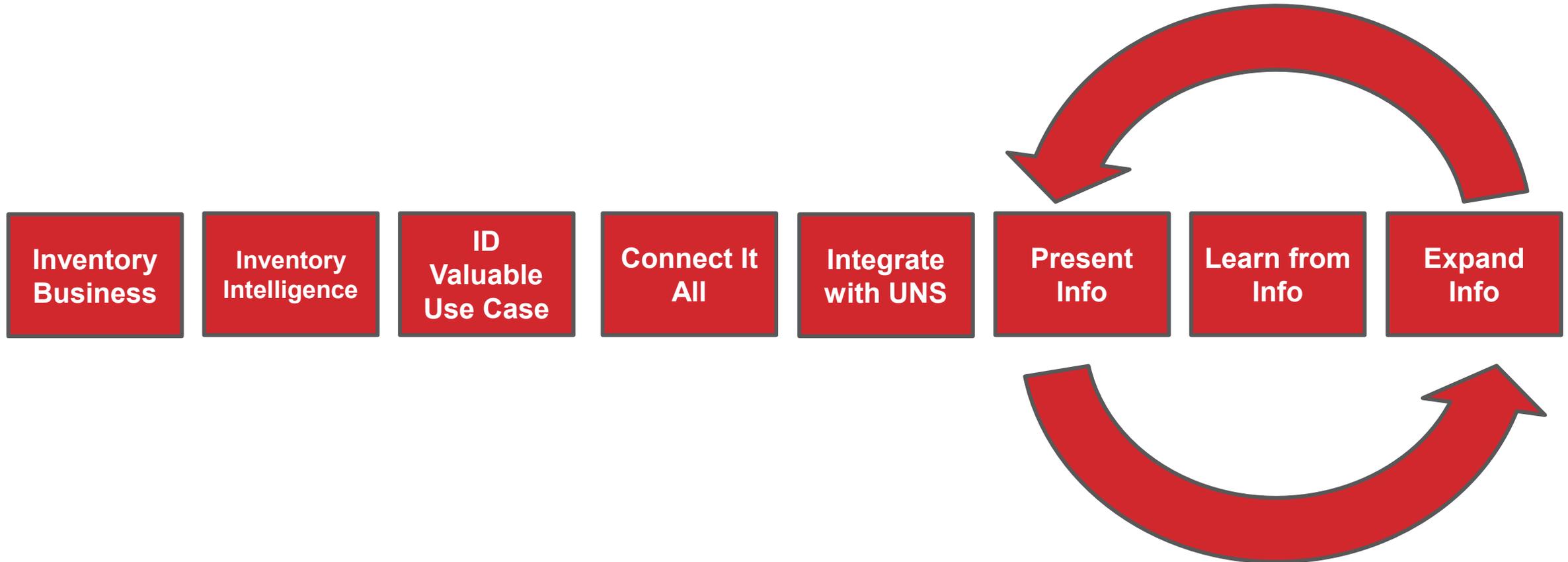
Medium Term

Survive & Thrive
Employee of Future

Long Term

Data in Supply Chain
Products Become Smarter
Solid Future
Company Value
Become Data Company!!!

HOW TO EXECUTE



Iterative Process

COMMON QUESTIONS



- Where does it live?
- Does it store data?
- Where does it store data?
- What if devices don't speak MQTT Sparkplug B?

Q&A



Q&A

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