Ensure data consistency within ENI versalis MES infrastructure

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In cooperation with

PIMSOFT
INNOVATIVE SOLUTIONS

Eni Chemicals, Versalis

I numeri di Versalis Versalis in numbers

5,100 persone employees

12 12 stabilimenti (8 Italia, 4 Europa) 12 plants (8 in Italy, 4 in Europe)

71 impianti production units

oltre over **5** Mln produzione production volume

390 prodotti products

5 centri di ricerca research centres

250 brevetti patents

Versalis nel mondo Versalis worldwide

- ○ sede centrale headquarter
- ■ stabilimenti plants
- ■ ricerca research & development
- ■ rete commerciale sales network
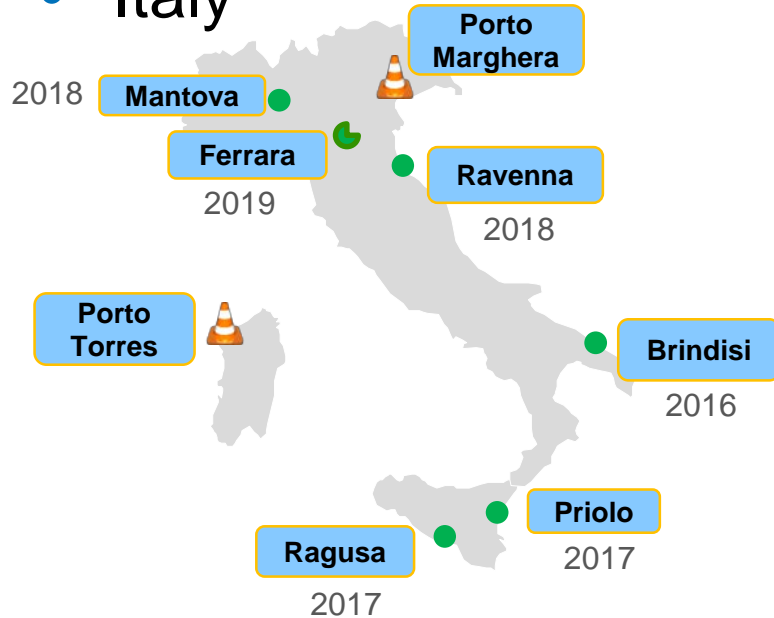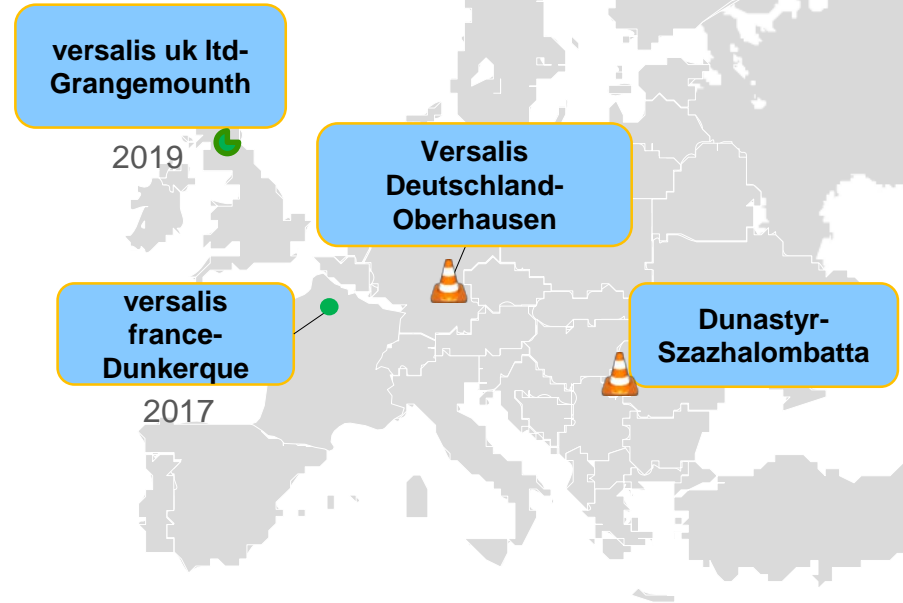- ■ licensing

Versalis (Eni) is Italy's largest chemical company interfacing with markets on the international scene of the basic chemicals, plastics, rubber and, recently, bio-based industry, holding market stewardship in manufacturing intermediates, polyethylene, styrenics and elastomers

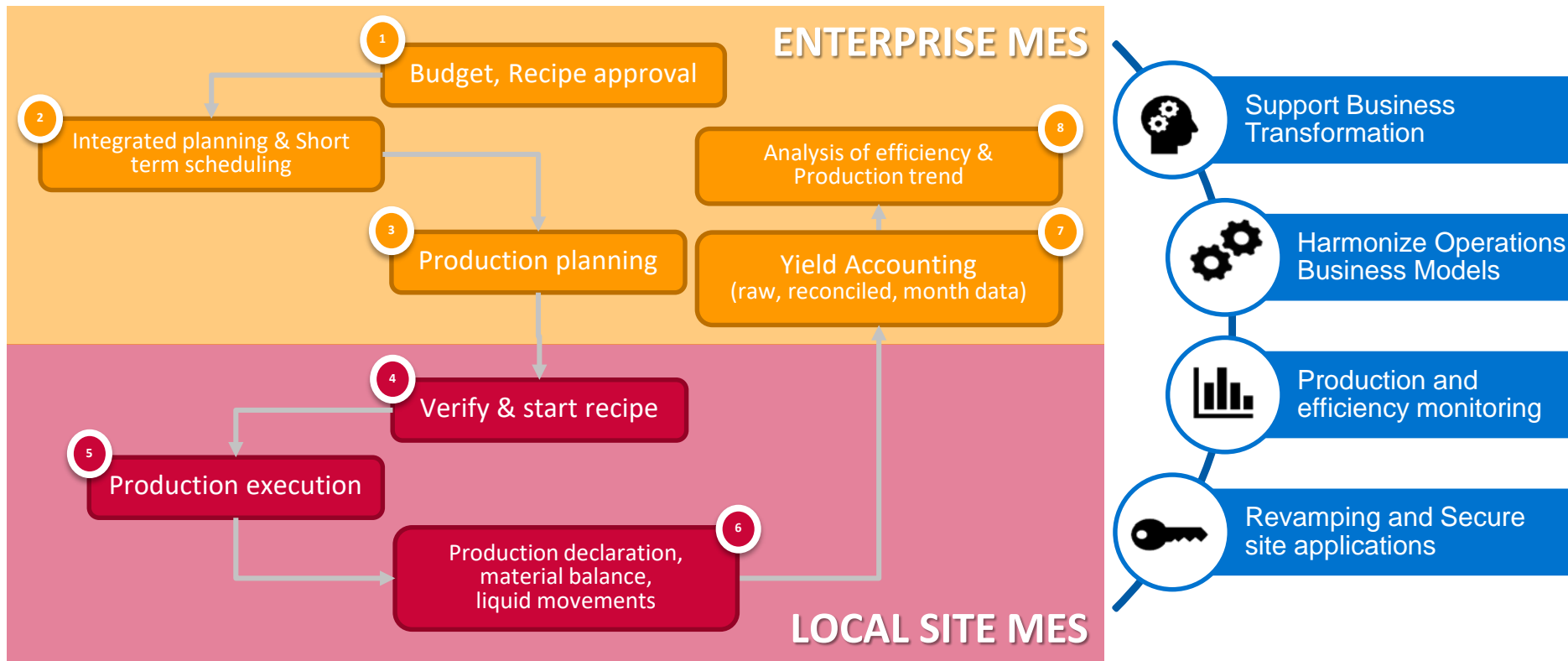# Manufacturing Execution System (MES): a digitalization initiative

Manufacturing Execution System (MES): a digitalization initiative

• Italy

- **Porto Marghera**
- 2018 **Mantova**
- **Ferrara**
- 2019
- **Ravenna** — 2018
- **Porto Torres**
- **Brindisi** — 2016
- **Ragusa** — 2017
- **Priolo** — 2017

• Europe

- **versalis uk ltd-Grangemounth** — 2019
- **Versalis Deutschland-Oberhausen**
- **versalis france-Dunkerque** — 2017
- **Dunastyr-Szazhalombatta**

Legend:
- ● Completed
- ◔ Close to Go-Live
- 🚧 In progress

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MES – Main initiative goals & benefits

ENTERPRISE MES

1. Budget, Recipe approval
2. Integrated planning & Short term scheduling
3. Production planning
8. Analysis of efficiency & Production trend
7. Yield Accounting (raw, reconciled, month data)

LOCAL SITE MES

4. Verify & start recipe
5. Production execution
6. Production declaration, material balance, liquid movements

Support Business Transformation

Harmonize Operations Business Models

Production and efficiency monitoring

Revamping and Secure site applications

The two data pillars of the MES infrastructure

PI System	Sigmafine

- Both Distributed and Centralized data infrastructure
- Production accounting
- Daily reconciliation and monthly aggregation
- Inventory checks and bill of material validation
- Auditing data chain (raw value, user validation, reconciled figure)
- Automatic Email notification
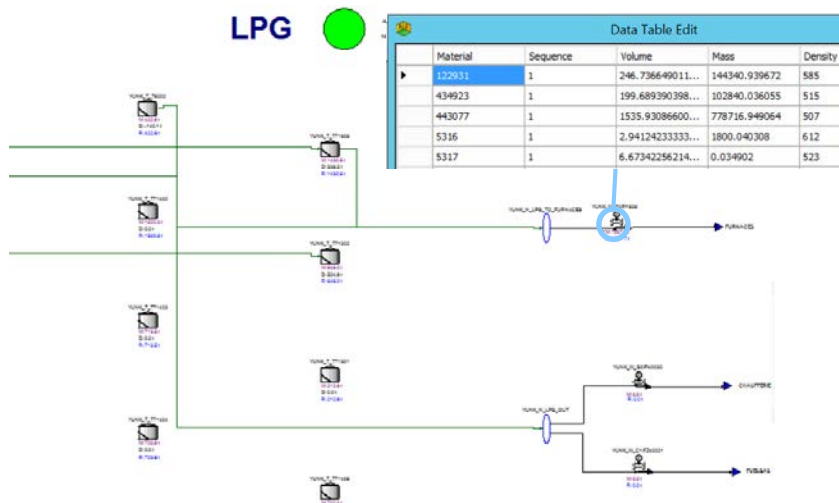- Advanced algorithms (e.g. quality tracking)

Use case: enterprise real-time monitoring of all sites

PI Vision dashboards allow aggregated view and comparison of plant **feeds** and **productions** for all the sites, based on:

- Real-time data
- Daily averages
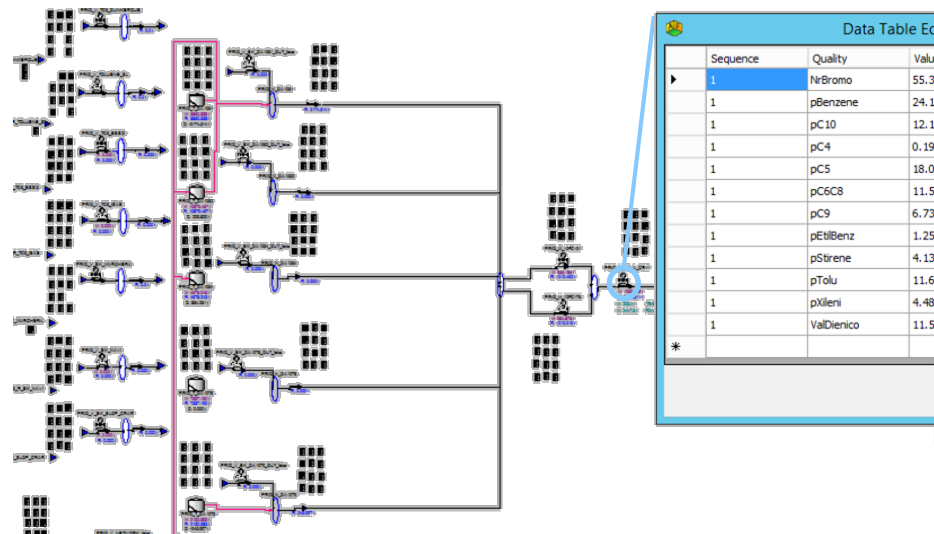- Daily averages of the previous day

Sigmafine tracking at Dunquerke and Priolo

Composition Tracking applied at *LPG network in Dunquerke*
- Combine PI system data and material movements
- Infer material composition of the cracker liquid feed (% of propane and butane)
- Find optimal composition of cracker feed
- **Improved cracker yield**

Quality Tracking applied to *aromatic plant in Priolo*
- Combine PI system data and material movements
- Infer material properties in inventories and moreover at plant feed (%comp., bromine and diene numbers)
- Assessment of plant yield is now achieved in near real time
- **Improved decision making in logistics**

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COMPANY and GOAL

ENI versalis wants a unique infrastructure to manage all information both locally and at enterprise level

CHALLENGE

Many sites, each with specific rules and needs, several different systems

- It is hard for headquarter to have a summary of all the business
- Relevant data are often available too late, delaying business decisions (typically month end reports)

SOLUTION

A unique model for Operations applied to all sites, based on the PI System to collect the data and Sigmafine for the data validation and analysis

- Harmonized business processes among several production sites
- Able to manage different productions and logistics

RESULTS

Management has now control of the entire business.

Key production data are now available daily allowing a faster reaction to market changes

- Quality of the data has increased both due to better systems integration and data validation and reconciliation
- No more huge imbalances at month end

Contact Information

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Thank You