Digital daily management for manufacturing teams

✓ Pragmatic Industry 4.0  ✓ Empower frontline teams
E&J Gallo
The World’s Largest Winery

✓ 1 in 5 bottles of wine sold in US
✓ 6000 employees, 21 Wineries, 83m cases
✓ 70% of revenue comes from brands which did not exist 15 years ago
✓ High performance work teams

A FAMILY TRADITION
80% of shop floor tasks are performed by people.

People are the biggest driver of value and process variability.
Paper, spreadsheets & pocket notebooks prevailed

“lack of accessibility to standard work, reporting and real time communication on the shop floor...

...creates gaps in safety, compliance checks, onboarding and high performance work teams”
An Industry 4.0 blindspot

80% of data about frontline operations is trapped in spreadsheets & people’s heads
From 5 to 30+ use cases within 6 months

<table>
<thead>
<tr>
<th>What</th>
<th>Phase 1 use cases</th>
<th>Use cases added by users</th>
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</thead>
<tbody>
<tr>
<td>Operations</td>
<td>Shift Changeovers and startups</td>
<td>Centerlining</td>
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<td></td>
<td>Work instructions &amp; SOPs</td>
<td>Waste management</td>
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<td>Pest control</td>
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<td>5S</td>
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<td>Suggestion box</td>
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<td>Action tracking</td>
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<td>Safety</td>
<td>Near miss, incidents and BBOs</td>
<td>Vehicle safety checks</td>
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<td></td>
<td>Safety checklists and walkabout</td>
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<tr>
<td>Maintenance</td>
<td>Autonomous maintenance</td>
<td>Maintenance tags</td>
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<tr>
<td>Quality</td>
<td>QA checks &amp; inspections</td>
<td>GMP audits</td>
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<td></td>
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<td>CCPs</td>
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<td>Sanitation tracking</td>
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<td>Cleaning</td>
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Teams digitise their own procedures

Based on operational knowledge, not programming knowledge
Troubleshoots and other complex workflows
Mobile, on the Floor Task Lists and Standard Work

- **follow up with mainte…**
  - Due 16 hours ago

- **Changeover**
  - x3
  - Shift Changeover
  - Due in 8 hours

- **HRAD Inlet pH Meter …**
  - LWINE Sensor Maintenance
  - Due in 8 hours

- **Fork Lift Truck Inspect…**
  - Vehicle Safety Check
  - Due in 8 hours

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**Inspecting flare and pump**

1) Check Gas Pressure PI-2 (Inlet to Flare)
2) Record Pump 3516-02 Pressure
   Record and 3516-03 Pressure
EJ Gallo’s First Digital Gemba Board
Faster Problem Solving

- **Water (HRAD)**
  - Low Level FLOC
  - Low Level COAG
  - 25000 HRAD Feed Target
  - 153.74 GPM Target
  - 172 GPM Actual

- **Staged FLOC Totes**
  - 2.00 (Goal: 4 - 50%)

- **Staged COAG Totes**
  - 14.00 (Goal: 5 - 30%)

- **LRADs**
  - Filling Mix Tank 1 Status
  - Offline Mix Tank 2 Status
  - 30000 LRAD Feed Target

- **Gas / Compliance**
  - Online Dryer Status: Compliant
  - Offline Generator 1 Status: N/A
  - Online Generator 2 Status: Compliant

Notes:

Low battery voltage. Pictures or alarms in webex.

Made a Catch T as an alternative water line to gas treatment area, decanter pad area, CHP area, SS area and Lab area while we wait for water line repair. Gen#1 glycol pump repair completed but we still need 1 more barrel of glycol that will be delivered tomorrow. IPS is having issues with the blackline water coming into rotary and step screen; it is causing overflow out of rotary screen but for now while lower pressure level we are running in storm override and not having any issues keeping up with wastewater demand. It seems like our 18inch blackline motorized valve pinches all the way and sends all of the wastewater to our IPS and overwhelming the system.
Autonomous Maintenance

Inspecting Flare and Pump

- Inspect Flare Panel (Required)
- Gas Pressure PI-2 (Inlet to Flare) (Required)

1) Check Gas Pressure PI-2 (Inlet to Flare)
2) Record Pump 3516.02 Pressure Record and 3516-03 Pressure

Any additional comments?
Issue management (HSEQ)
Leader standard work

<table>
<thead>
<tr>
<th>Action</th>
<th>Description</th>
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<tbody>
<tr>
<td>Line changeover 2019 SOP update</td>
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Changeovers & short interval control
Paperless standard work & skill matrix
## Compelling business case

<table>
<thead>
<tr>
<th>Productivity</th>
<th>Quality</th>
<th>Safety</th>
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<tbody>
<tr>
<td>• 37% more output than last year</td>
<td>• Tank sanitation scores improved by 25%</td>
<td>• Leading indicators vs lagging</td>
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<tr>
<td>• 15 million more gallons of water treated</td>
<td>• Best GMP attainment scores in Gallo</td>
<td>• 2x more hazards + NMs reported</td>
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<td>• Reduced onboarding to less than 1 month</td>
<td>• 5x first time right rate (e.g. loading targets)</td>
<td>• Half day per team lead/week saved on paperwork</td>
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Single line to multi-site in less than 12-months

- Single line Pilot (2 months)
- Site deployment (6 months)
- Multi-site roll out
What about strategy?
1. Target early adopters
2. Avoid Pilot Purgatory
3. Choose the right use cases to cross the chasm
4. Think about network effects for scale
5. Start before you feel ready
✓ Pragmatic Industry 4.0  ✓ Empower frontline teams
Thank you for listening

Digital daily management system for manufacturing teams

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