Insights Talk
Albemarle Corporation

Learn how Albemarle Corporation transformed its supply chain with SAP Integrated Business Planning

July 12
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Senior Director, Supply Chain
Albemarle Corporation

- Currently leading a global Supply Chain transformation project to implement a new standard of S&OP process and tool
- Began career at Albemarle in 1979, and held various key positions as Global Purchasing Director and Director, IT
- Over 20 years’ experience in Supply Chain Management
AGENDA

Ø Introduction: Albemarle Corporation
Ø Introduction: Intrigo systems Inc.
Ø What were we trying to accomplish?
Ø Supply Chain Transformation: Key focus areas
Ø Why IBP?
Ø Where are we Today?
Ø How did we get data In/Out of IBP?
Ø Key changes to the S&OP Process (New Vs Old)
Ø New SCT Metrics & Forecast Accuracy
Ø Lessons Learned
Ø Q&A Session
Introduction:
Albemarle Corporation
Albemarle Corporation - $4B Specialty Chemical Company

Refining Solutions
- FCC for Resid and Max Propylene
- FCC for VGO
- Hydroprocessing
- Isomerization
- Alkylation
- Chemical Catalysts

Lithium and Advanced Materials
- Li Metals (Batt)
- Li Foils, Components
- Li Salts (Batt)
- Curatives
- Organometallics
- Polymer Catalysts and Components

Bromine Specialties
- Fire Safety Solutions
- Oilfield Products
- Mercury Control
- Water Treatment

Fine Chemistry Services
- Growing APIs
- Intermediates for Pharma/Ag Innovators
- Customer-focused During Entire Product Lifecycle
- Innovative Chemistry for New Markets
Albemarle’s Global Footprint is a Competitive Advantage

Albemarle employs approximately 6,900 people and serves customers in approximately 100 countries.
New Organizational Structure - Path To Achieving Excellence

Legacy ALB and ROC Structure

- Performance Catalysts
- Fine Chemistry Services
- Specialty Chemicals
- Fire Safety Solutions
- Lithium
- Chemetall Surface Treatment
- Refining Solutions

New Structure Effective 1Q2015

- Performance Catalysts
- Lithium
- Chemetall Surface Treatment
- Refining Solutions
- Metal Sulfide
- FCS*
- Minerals
- Performance Chemicals

* FCS – Fine Chemistry Services
** Bromine – includes Brominated FR, non-FR brominated derivatives, and curatives

Reporting to include lithium and bromine details

Legacies:
- ALB
- ROC

Represents businesses to be divested
Intrigo Systems: Black Belts in Enterprise Solutions

- **MANUFACTURE**: Strategic and deep seated partnerships with global leaders
- **ADVISORY**: 200+ successful implementations globally
- **INTEGRATION**: Thought leaders in advisory, implementation and managed services
- **SUPPORT**: Custom in-house softwares for seamless business processes
- **PROCURE**: 250+ highly experienced resources worldwide
- **PLAN**: Fortune 1000 clients across geographies
- **DIGITAL**: Products
- **products**: Custom in-house softwares for seamless business processes
Why We Chose Intrigo - An Outstanding Track Record Delivering on a Global Scale
Supply Chain Transformation
Key Focus Areas
Supply Chain Transformation Project - Goals and Accomplishments

- Reduce working capital by $100MM in 2014
- Enhance and greater visibility for sales and business forecasting
- Develop and implement global S&OP process
- Tighter integration between S&OP and manufacturing planning
**Supply Chain Transformation Project - Key Focus Areas**

**Enhanced Sales Forecasting**
- Forecast accuracy metrics at the sales rep level
- Speed up cycle to get volume to manufacturing sooner
- Sales, business and consensus demand forecasts separated

**S&OP Process & Tools**
- Single, global tool – No more spreadsheets
- Common process, reports / dashboard for S&OP
- Earlier forecast lock; more time for manufacturing planning

**Manufacturing Planning**
- Single version of the truth – SAP
- Tighter integration between S&OP, forecast and production execution
- Improved Metrics on produce to plan
Integrated Business Planning
Why SAP IBP?
Why Integrated Business Planning? - Business Imperative for IBP at Albemarle

Looked at SAP IBP (formerly SAP S&OP) and 2 Other Packages in Early 2014

IBP Selected for Following Strengths:

Ø Best integration with SAP and BI existing environments
Ø SAP HANA seen as future platform for Albemarle SAP environments
Ø SAP IBP on HANA recognized as strategic, future platform for SAP Supply Chain
Ø Seamless interfaces from SFDC and back into SAP
Ø Excel interface for business and sales
Ø Easy to use and already preferred by the user community
Ø Sales forecast accuracy at sales rep level
Ø Web UI capabilities to standardize on single, S&OP meeting look and feel
Ø Seamless integration for MRP/MPS goals for the SCT project
Ø Enhanced RCCP functionality to better predict and manage inventory
Integrated Business Planning

Enhanced User Experience
Introduce state-of-the-art user experience with communication capabilities (SAP JAM) and MS Excel Spreadsheets

Built on SAP HANA
Demand Networks require real-time monitoring and a focus on short-term planning

One Harmonized Data Model
Avoid any latency due to integration efforts and leverage the SAP ERP data model

New Planning Algorithms
Leverage predictive analytics (e.g., demand sensing) algorithm in combination with optimization

Cloud First Approach
The solutions will be provided in the SAP Cloud but also be made available on-premise

© Source: SAP IBP Solution Presentation
## Where We Started

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<th>Div 2</th>
<th>Div 3</th>
<th>Div 4</th>
<th>Div 5</th>
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</thead>
<tbody>
<tr>
<td>Master Data Cleanup</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Users Trained</td>
<td>70 S&amp;B; 1 Planner; 1 Fin</td>
<td>50 S&amp;B; 2 Planner; 1 Fin</td>
<td>80 S&amp;B; 1 Planner; 1 Fin</td>
<td>50 S&amp;B; 1 Planner; 1 Fin</td>
<td>50 S&amp;B; 1 Planner; 1 Fin</td>
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<tr>
<td>Sales and Business Forecasting with F.A.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<td>Demand Planning in IBP</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>RCCP in IBP</td>
<td>✓</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>IBP and SAP Volumes in Sync</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>IBP and SAP Forecast Prices in Sync</td>
<td>✓</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Progress towards retiring XLS</td>
<td>100%</td>
<td>90%</td>
<td>100%</td>
<td>75%</td>
<td>50%</td>
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Data Flow - How did we get data in/out of SAP IBP?

- **BW/BI** Historical Transactional Data
- **SAP 4.6c** Transactional Data Master Data
- **SFDC** Opportunities Data

**SAP S&OP Planning Tool**

**S&OP Database**

**HCI: HANA Cloud Integration**

**SAP 4.6c**
- PA Forecast
- MRP Planning

**Data Integration**

**Application**

**Excel Planning Views**

**Web User Interface**
## Key Changes To S&OP Process - Moving to a new improved platform

<table>
<thead>
<tr>
<th>Key Areas</th>
<th>New Process</th>
<th>Old Process</th>
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<tbody>
<tr>
<td>Technology</td>
<td>SAP IBP tool on Hana</td>
<td>Fragmented Excel Spreadsheets</td>
</tr>
<tr>
<td>Master Data</td>
<td>Automated into tool from SAP</td>
<td>Manually maintained in spreadsheets by each planner</td>
</tr>
<tr>
<td>Sales Involvement</td>
<td>Consistent Demand input from sales</td>
<td>Fragmented across businesses</td>
</tr>
<tr>
<td>Demand Consensus</td>
<td>Process to review all demand signals and historical accuracy</td>
<td>Not executed by all businesses</td>
</tr>
<tr>
<td>Metrics</td>
<td>Centrally Defined and maintained in tool</td>
<td>Managed by each planner/business</td>
</tr>
<tr>
<td>Meeting Cadence</td>
<td>Consistent meeting timing, attendees, inputs/outputs</td>
<td>Varies by planner/business</td>
</tr>
<tr>
<td>Alignment with MRP</td>
<td>New tool emulates MRP so S&amp;OP and MRP are ‘speaking the same language’</td>
<td>Spreadsheets sometimes out of synch with MRP</td>
</tr>
</tbody>
</table>
# Customer Master Cleanup

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<tbody>
<tr>
<td>Sold To</td>
<td>593</td>
<td>825</td>
<td>1,581</td>
</tr>
<tr>
<td>De-activated</td>
<td>75</td>
<td>48</td>
<td>TBD</td>
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<tr>
<td>Ship To</td>
<td>478</td>
<td>981</td>
<td>1,495</td>
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<tr>
<td>De-activated</td>
<td>30</td>
<td>70</td>
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<tr>
<th></th>
<th>C2 &amp; C3</th>
<th>PCS</th>
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<tr>
<td>Customer Group Keys</td>
<td>Reviewed / Updated</td>
<td>1,295 / 75</td>
</tr>
<tr>
<td>Incorrect Links</td>
<td>Reviewed / Updated</td>
<td>19,369 / 1944</td>
</tr>
<tr>
<td>Sales People Assignments</td>
<td>Reviewed / Updated</td>
<td>7,459 / 1334</td>
</tr>
</tbody>
</table>
## Material Master Cleanup

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</thead>
<tbody>
<tr>
<td>SKU:Plant</td>
<td>1,774</td>
<td>2,505</td>
<td>2,397</td>
</tr>
<tr>
<td>De-activated</td>
<td>349</td>
<td>919</td>
<td>1,394 (proposed)</td>
</tr>
<tr>
<td>Work Center: Routings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reviewed &amp; Updated</td>
<td>724</td>
<td>912</td>
<td>TBD</td>
</tr>
<tr>
<td>Planned Delivery Time</td>
<td></td>
<td></td>
<td>TBD</td>
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</table>
Supply Chain Transformation - New Metrics

Customer Terms
• AR average payment terms
• AP average PO payment terms
• % past due trend

Manufacturing Planning
• Produce to plan
• Changes within time fence

S&OP Process
• Forecast accuracy and bias
• Inventory turns

Inventory
• Slow moving / out of spec FGs
• Raw materials

Other
• First time fill rate
• Master data management
• Network statistics/ savings
Forecast Accuracy

- Reported monthly to ALB execs at sales rep level
- 30% of annual salary incentive is at risk for F.A.
Additional Benefits of Moving to SAP IBP for Sales & Operations

• One Planning area to view all demand & Supply Elements
  – Customer/Consensus Demand, Supply, Inventory, Intermediates, Raw Materials, Capacity Plan – **One Data Model**

• Volume Planning
  – Allow planning for Finish Goods, Intermediates and raw materials, which are used in more than one plant location
  – Keeps track of by-products/Co-products/Recycle streams
  – Ability to plan in Supply Networks

• Capacity Planning
  – Ability to plan Campaign for Multiple products at one Asset
  – Ability to plan single product across multiple assets (By Quota or Units) to Maximize capacity utilization
  – Capacity Data consumed at lowest level from SAP Execution systems
  – Ability to model capacity at DC or MFG locations

• Inventory Planning
  – Based on Days of Coverage or unit target qty at FG, Intermediate and Raw Material Level
  – Global look at inventories at various levels supply chain nodes (Including In transit)
Lessons Learned

Ø Master data cleanup took 3X times manpower and time estimate
Ø New SAP IBP technology added delays; but big improvements of late
Ø Excel interface - easy to train and quickly accepted by Sales and Business
Ø Achieved higher than expected inventory reductions
Ø Sales forecast accuracy metric a “Game Changer” in improving forecasts
Future Plans

Ø Project approved to integrate Lithium businesses into SAP IBP system

Ø Begun master data “due diligence” in Lithium SAP ECC system

Ø Already identified lots of process changes needed in Lithium, most notably, in planning fields in the Material Master

Ø Contracted with Intrigo to be our implementation partner

Ø Targeted completion of December 31\textsuperscript{st} adding 75+ Lithium Sales, Business, Supply Chain, Finance and Manufacturing users to SAP IBP System