Merging Operations, Production, Logistics and Financial Analysis

Engineering Significant Rail Efficiencies

Strategic Partners with
The application of scientific and mathematical principles to practical ends such as the design, manufacture, and operation of efficient and economical structures, machines, processes, and systems.
What Issues / Frustrations do you have?
Observations from “the trenches”

- Change happens over time
  - Safety, regulation, goals, bosses, organizations, mergers, people
  - Production processes
  - Commodity and customer mix
  - Railcar type and size
  - Product handling requirements
  - Loading / unloading processes

- Solutions without full evaluation of the broad causes often lead to sub optimized use of resources and unintended results
WARNING

Be Wary of Unintended Consequences!
Product Loading/Unloading

- Plant sites grow over time, capacity/production are added in “vacant” locations
- New rail shipping patterns, products, rail equipment
- Industrial plant processes and inbound/outbound requirements
Product Loading/Unloading

- Continual review of and integration of plant processes and rail capabilities is critical.
Railcar Utilization & Shipping Patterns

• Railcars considered buffer capacity for inputs / outputs and production capacity

• Receiving inbound, shipping outbound, processing customer orders and product storage have major implications to rail operations

• Common solution ➔ more cars ➔ more track

• Evaluate current and future shipping needs around improving car cycle times
Where to Start?

• Traditional instinct is to build more of everything = $$$

• Could there be operational improvements to reduce or avoid Capital Investment?

• Organizational coordination

• Conflicting goals between departments/divisions
Where to Start?

- Review Process, then look at Capital Investment
The List?

• The review should include
  ✓ Car order/Release
    o Internal plant, railroad, customers
  ✓ Plant production processes
  ✓ Material handling and storage
  ✓ Carrier service levels and consistency
  ✓ Equipment availability and costs
  ✓ Timing
  ✓ Organizational structure
  ✓ Challenge of demonstrating financial benefits
Where do you find communication, coordination or goal conflicts?
Assessing the “blame”

• The standard approach is to blame the Railroad!

• Is the single biggest impediment to inefficiencies your own ORGANIZATION?

• Plant production, material handling, multiple modes of transportation, conflicting goals within plant divisions and within corporate hierarchy, lack of resources, ……

• Correct solutions can be counter intuitive (and counter culture) when viewed from inside your organization
Plant Site Review

• Safety, regulatory compliance, environmental stewardship

• Material handling, storage, loading/unloading

• Opportunity cost due to limits on throughput

• Costs of asset delay, demurrage, redundant capacity
Plant Site Review

- Where are your bottlenecks.....REALLY??
Plant Site Improvement / Development

- Processes
- Coordination
- Communications
- Cost Benefit Analysis and Justification
Plant Site Improvement / Development

- Plan, Execute, Measure, Repeat!

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Evaluate Serving Rail Carrier

- Serving Rail Carrier safety, processes, service levels
- Fleet performance
- Coordinate and integrate internal/external communications, loading locations, carrier placement of cars, timing of service, etc.
Internal Rail Configuration Operations Evaluation

• Last step if process improvements do not lead to desired improvements

• Develop and model concepts to improve rail infrastructure

• Develop negotiation strategy to discuss improvement’s value to serving carrier and seek CapEx/rate participation
Financial Justification

- Finance & Operations (yeah!)

- Purchasing / Accounting / Engineering (do we have to really invite them?)

- Define the improvement / project ramp up and business case

- Develop “independent utility” phases that fit into the overall project ramp up
Financial Justification

• All ideas must be analyzed from a safety, process integration, and cost / benefit perspective
Results

• **Chemical Plant**
  - Reduced internal rail carrier switching time from 2 hours a day to less than 15 minutes (plant shut down production during rail carrier switching)
  - All product weighed inbound / outbound (250K scale capex)
  - Reduced total loading rack locations from 12 to 4 and improved safety

• **Chemical Plant**
  - Reduced time for internal switching by 37% thru track configuration changes (2M versus original proposed 5.5M capex investment) / overtime
  - Improved inbound / outbound service by rail carrier thru dedicated tracks
  - Allowed increase in number of products that could be loaded into railcars.

• **Ag Processing Plant**
  - Redefined the internal rail operations for over 900 in-plant railcars and 50 plus loading locations to complete reorientation of contract switcher ops
  - Reduced 3 switch crew shifts per week
  - Improved car availability to individual load locations
Conclusion

- Seek out experts who have experience and skills in multiple areas

- Sometimes the best view is from outside

- Debottleneck

- GOAL ➔ Use expansion of operations / infrastructure as last option
Help our clients become better rail shippers.
What can we help you understand better?