Data-Driven Approach to Inventory Management

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What is a Supply Chain?
The Traditional Publishing Supply Chain

Fragmented and Inefficient due to poor flow of information
Why Inventory Management?

- Large Cash Investments
- Slow Stock Turns
- Industry Patterns of Inefficiency
  - Returns
  - Remaindering
  - Destructs
- Shifting consumer & B2B engagement patterns
- X% improvement drives bottom line results
Inventory is only the tip of the iceberg!

There are plenty of less-visible but connected wastes

Inventory
Transportation
Time
Facilities & Space
Material Handling
Packaging
Over, short, damage & shrink
Fulfilling multiple format brings more costs

Digital production has additional costs:

<table>
<thead>
<tr>
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<th>DIGITAL</th>
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<tbody>
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<tr>
<td>RoyaltyShare</td>
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Fixed & rising variable cost

Higher % of fixed cost
Data-Driven Decision Making

Product based decisions

Information based decisions

Information Flow
1. **Push or Build to Stock** - *(Traditional Publishing)*
   Producing stock on basis of anticipated demand

2. **Pull or Build To Order** - *(Digital & Commerce Sites)*
   Producing stock in response to actual demand

3. **Hybrid Push-Pull** - Demand/Supply plan to
   Push Initial Stock and Pull for Replenishment

Optimally locating the Push-Pull point
is a key determination of Supply Chain performance
Five Key Areas of Inventory Data Intelligence

1. Sales Estimating / Demand Planning
2. Inventory Build / Supply Chain
3. Replenishment Strategy
4. Inventory Data Maintenance
5. Inventory Disposition
1. Sales Estimating / Demand Planning

First Print Modeling

- Acquisition / Budget Volume Assumptions
- Title Comparisons
- Historical Author Sales
- Shipment History by Channel/Account
- Field Sales & Customer Input

Data Attributes to Demand Modeling

Output

Forecast of Initial Consumer Demand
(initial laydown + x weeks of supply)
2. Inventory Build / Supply Chain

- Forecasted Demand Curve
  - Partner Costs
    - Slotting Philosophy
  - Lead Times
  - Supply Partner Build Capacity
  - Supply Chain Quality Metrics
- Data Attributes to Supply Plan Modeling
  - Minimum Order Quantities
  - Customer Statistical Safety Stock
  - Channel / Account Allocations Strategy
- Supply Chain Slotting Plan
  - PO Issuance
  - Bill of Materials
  - Cost of Goods Sold

Raw Materials to Finished Goods

Finished Goods to POS
3. Replenishment Strategy

- POS Forecast vs. POS Actual Demand Curve
- Ship Forecast vs Actual Supply Curve
- Inventory On-Hand
- Backorders
- Returns
- Stock Levels at DC/Stores
- Event/Marketing Changes/Intelligence
- Inventory in Transit
- Supply Lead Time
- Partner Costs
- Partner Capacity Calendars
- Raw Materials on Hand
- Production Orders in Process
- Output
- Reprint Orders
- Forecast Accuracy & Learning
- Event/Marketing ROI Analysis
4. Inventory Data Maintenance

Good Metadata Improves Sell Through of Books

Sales per ISBN (Nielsen UK Study)

- Incomplete Metadata, No Cover Image: 268%
- Incomplete Metadata, with Cover Image: 498%
- Complete Metadata, with Cover Image: +32%

Source: Nielsen
### Core Metadata Elements

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<td>• Cover image*</td>
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*Technically not metadata but timely availability is crucial.*
5. Inventory Disposition – “Changing the Rules”

Data Attributes to Investment Recovery Modeling

- Forecast Accuracy
- Continuous Improvement
- Refurbishment & Put-Aways
- Destructs
- Marketing / Sales Programs
- Channel / Account Metrics
- Inventory On-Hand (Mos of Supply)
- POD Tactics (Virtual vs Perpetual)
- Remainders
- Charity

Output

Best Practices & Policy Adjustments
Summary

- Metadata – the many definitions of your book and how you measure its success.

- Data-sharing between internal and external value chain partners in Publishing greatly mitigates the risks of a volatile marketplace.

- A smart supply chain combines the costs and revenues of digital and print products when evaluating its ability to fulfill any demand.

- Effective supply planning requires an understanding of lifecycle in order to incorporate push and pull resupply strategies accordingly.

- Order size greatly impacts picking, packing, and shipping. Logistics must be analyzed to ensure smooth and cost-effective workflow.

- The secondary market is evolving. Understanding the bottom line impact of inventory disposition decisions is critical.

- Successful inventory management is the result of communication, consensus, execution, analysis, and review.