Bar Coding in Dynamics NAV

Planning and Executing a Barcoding Implementation
Agenda

• Discussion will focus on barcoding for manufacturing and distribution

• After this session, you will be aware of:
  – Reasons to implement barcoding
  – Types of barcoding solutions
  – What software and hardware to select
  – Pre-deployment issues to be aware of
  – Go-live and post go-live issues to be aware of
Electronic Data

- Everyone here deals with data
  - Inventory levels
  - Purchase orders
  - Shipping documents
  - Sales orders/invoices
  - Shop data

- That data can be a competitive advantage, but it must be timely and accurate
Matching Physical and Virtual

• The problem is keeping the physical world and the “virtual world” in sync
• Typical errors include:
  – Lost transactions (I lost the paper!)
  – Delayed transactions (I found it!)
  – Improperly recorded information
• These errors add significant costs
Symptoms of Bad Data

- Bad data management often results in:
  - Inventory overstock
  - Expedited purchases
  - Lower than expected margins
  - Lost receivables
  - Lower shop productivity
  - More office overhead
  - Poor customer service
Improving Data Capture

• Barcode scanning is a very accessible technology (cost & complexity)
• Practically any transaction can be recorded by scanning a barcode
• Dramatically improves accuracy and efficiency
• Multiple hardware options
  – Including hands-free/voice
Collecting Data Isn’t Enough

- Data is really only useful once it becomes information that can be acted on
- Today, data is collected and decisions are made… in NAV
- We need to move those decisions to the shop floor to have an immediate impact
- This is Shop Floor Decision Support
## Shop Floor Decision Support

### Bill of Materials

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Description</th>
<th>Quantity</th>
<th>Expected</th>
<th>Remaining</th>
<th>Unit of Meas.</th>
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</thead>
<tbody>
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<td>BURNING...</td>
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<td>2</td>
<td>2</td>
<td>EA</td>
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<tr>
<td>545-059-01</td>
<td>00500 X ...</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>EA</td>
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<tr>
<td>545-057-01</td>
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<td>2</td>
<td>2</td>
<td>EA</td>
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<tr>
<td>746-020-01</td>
<td>CLAMP...</td>
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<td>2</td>
<td>2</td>
<td>EA</td>
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<td>10000-01</td>
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</table>

### Quality Measures

<table>
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<tr>
<th>Qty Measure Code</th>
<th>Description</th>
<th>Min. Value</th>
<th>Max. Value</th>
<th>Mean Tolerance</th>
</tr>
</thead>
<tbody>
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<td>ID</td>
<td>Inside Diameter</td>
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<td>1.1</td>
<td>0.12</td>
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<tr>
<td>CO</td>
<td>Outside Diameter</td>
<td>4.01</td>
<td>4.05</td>
<td>0.05</td>
</tr>
</tbody>
</table>

### Work Instructions

- Build extra for stock
- Be safe
- Remember staples

### Links

- Home
- Job Card
- Resource Usage
- Quantity Explosion of BOM
Shop Floor Decision Support
Software Solutions

• For most companies running NAV, material and labor tracking are crucial

• Several options exist for NAV:
  – In-house development
  – NAV ADCS (for material only)
  – General “framework” add-ons
  – Dedicated add-ons
In-house Development

- I.e., build a point solution to meet company-specific needs

Pros:
- Programming is fun!

Cons:
- Less functionality
- Longer deployment time
- Higher cost than other solutions
Sample In-House App
• **NAV ADCS**

  • **Pros:**
    - Free in 2013+ with Extended Pack
    - Easy to get running

  • **Cons:**
    - Terminal emulation on handheld (i.e., text-based UI)
    - Fairly pricey in pre-2013 NAV
    - Does not handle item tracking well
    - Often requires a lot of customization
    - Requires Directed Pick/Put-away
Types of UI
“Framework” Add-ons

- These allow you to design your own mobile solutions
- Pros:
  - Flexible, NAV business logic
  - Can be extended for tasks outside shop
- Cons:
  - UI is often not ideal for shop usage
  - Preconfigured systems lack depth
  - Often requires development
Dedicated Add-ons

• Purpose-built add-ons for shop use

• Pros:
  – Many non text-based options
  – Generally the most cost effective
  – Deep capabilities, including decision support

• Cons
  – Some solutions provide less control over UI design than other options
Sample Dedicated Add-ons
• Different options within each category operate as batch or real-time
• Generally real-time is preferred
• Batch mode cannot adequately control the link between physical and virtual
• Batch mode can be useful in some situations (VMI, network failure, etc.)
Batch vs. Real Time
Pre-Deployment Considerations

• Hardware and software selection
• Barcode strategy
• Deployment options (internal or cloud)
• IT engagement
• Network setup and coverage
• Identifying processes to change or retain
• Testing strategy
Hardware Options

• Generally the options are:
  – dedicated handhelds
  – phones/tablets,
  – fixed terminals with “wedge” scanners
• Decision is normally dependent on usage
• Handhelds are ideal for shop
• Phones are good for outside sales/VMI
• Fixed terminals are best for fixed stations
Hardware Options
Material Barcoding Strategy

• Some things to consider:
  – Will the vendor label product, or will you?
  – Will you label before or during operation?
  – Will you use 2D or 1D labels?
  – What do you need to record in the label?
    • Is item tracking required?
    • Expiry dates?
  – Will scanning items/bins be mandatory?
  – What media will the labels be on?
IT Engagement

- Ensure your IT department knows what you’re about to do
- Provide devices and supporting material well ahead of time
- Request access to test / production environments as early as possible
- Be nice to them
Network Setup

• When using WiFi, ensure:
  – Proper coverage throughout the shop
  – Compatibility with selected devices
    • E.g., older devices may not support LEAP/EAP
    • This may mean additional testing or engaging a third party to design network

• Ideally set up a separate “shop” network specifically for the devices
Process Change

- Barcoding projects often affect numerous upstream and downstream processes
- Ensure you understand which functional areas and processes will change
Process Change Examples

• Shop floor / time & attendance
  – Will likely eliminate a full time position
  – Can provide real-time view of production to planning and sales
  – New data analysis processes/tasks may be required or desired
  – Finite capacity scheduling is now practical
Process Change Examples (2)

- Material barcoding:
  - May make it worthwhile to start using advanced warehouse documents
  - Makes it efficient enough to use item tracking
  - Paper-based processes may become be redundant (e.g., picks, put-aways)
  - Convince vendors to barcode items and documents
Post Go-Live Considerations

• Once up and running, barcoding generally “just works”
• However, there’s often room for improvement, such as:
  – Using warehouse documents
  – Enabling directed pick if it makes sense
Barcoding ROI

- The measurable benefits of barcoding are often significant

- Case 1: Inventory Management
  - Barcoded inventory management with advanced count
  - System paid for itself after first inventory count

- Case 2: Shop Floor Data Collection
  - Barcoded production tracking
  - Payback for system in less than 6 months
Barcoding Promotions

- WMS Bundle: $5,000
- Advanced Inventory Count Bundle: $4,500
- 15% discount on Shop Floor Data Collection and Time and Attendance
Questions?

• Ask now...