SAP with Voice: The Way Forward

Presented by:

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- SAP Practice Director at Almasons Consulting
- Author of the EWM best-seller "Fundamentals Of SCM-EWM: A Step-by-Step Guide"
- Product owner of the “Ready to Deploy Voice Solutions” & "EWM Made Easy"
- Specialized in Supply Chain
  - Warehouse Management & Extended Warehouse Management
  - Voice implementation for SAP WM, EWM and IM
  - RF & Barcoding solution
  - 3rd party & cross module integration
- 18 years of SAP experience in the logistics and supply chain area
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- Operations Director at Almasons Consulting

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- Specialized in Supply Chain
  - Warehouse Management Solutions
  - Voice Integration
  - Labor Management

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In This Session

• Overview of traditional, RF, and voice enabled solutions
• Understand the productivity and accuracy driven features of voice picking in SAP
• Compare paper, RF and voice, and learn how voice helps increase operator performance
• Cover the device overview & the voice architecture
• Gain knowledge on SAP Voice: ready to deploy solutions & labor management reports
• Understand sign-on, work induction process in SAP Voice
• Learn what it takes to implement Voice in SAP environment
Spectrum of Picking and Putaway Methods

- Paper based putaway and picking
- RF based putaway and picking
- Voice enabled solutions

- Pick to Light / Tote
- Material Flow & Conveyor Systems
- Smart / Google Glass

75%
Paper based Putaway and Picking

• **Summary**
  ✓ Traditional (paper and pen method)
  ✓ Training is fast and quick
  ✓ Many Warehouses still use this method
  ✓ Low investment

• **Limitations**
  ✓ Not real time
  ✓ Manual sorting of bins (People driven process)
  ✓ Increased errors
  ✓ Low bin accuracy
  ✓ Missing labor management
  ✓ High customer returns
  ✓ Safety issue
  ✓ Increased staff – Audit and Supervisors
RF based Picking and Putaway

- System driven approach
- Reduced human errors
- Barcode and scanning functionality
- Increased bin accuracy
- Real time & system tracking
RF based Picking and Putaway

- **Limitations**
  - Small screen
  - Multiple screens with lots of information
  - Small keys and complicated navigation
  - Increased Training times
  - Heavy device to carry all day long
  - Reduced Safety
  - Scanning – short/long range, damaged label
  - Slow compared to paper and voice
Introduction to Voice

Device

- “Aisle 25”
- “414”
- “Pick 2”

Operator

- “Ready”
- “2-8-7”
- “2”

Bin Location

Check Digit – Material #
Voice Videos: Demo

High Efficiency  Increased Accuracy  Greater Productivity
Why Voice

- Reduced errors and increased accuracy
- Increased productivity and pick rates (Quick ROI)
- Increased efficiency (25 - 30%)
- Hands Free, Eyes Free, Increased Safety
- Reduced damage and breakage
- Reduced worker training time
- Added security with Kiosk Login
- No screens; Information on demand
- No keyboard, Simplified worker experience
- Paperless warehousing; no pick sheets
- Zero impact of technology upgrade on operators
- Real time & Fast
- Supports multiple languages
- Can co-exists with and use existing RF infrastructure
- Accent independent voice recognition
Comparison between Paper, RF and Voice

- **Voice picking**: Higher Accuracy & Greater Productivity
  - Increased Speed
  - Simplified Workflows
  - No Screen Interaction

- **RF picking**: Accuracy
- **Paper based picking**: Speed
SAP Voice Enabled Picking

**Productivity Driven Features**

- **Zone based work induction**: With Zone Based picking, operators can now work on orders within a specific zone. For ex. Orders on lower levels picked by foot and Orders on higher levels picked by forklifts.

- **Multi-pick / pick in batches**: Almason’s voice solutions allow operators to scan multiple orders and optimizes the work-route to prevent re-visiting the same location for multiple orders.

- **Rush order fulfilment**: Operators can now pause their current assignment to take on a high-priority assignment. Once completed, they can return to the original assignment.

- **Pass assignment**: With a simple voice command, assignments can be dropped to free an operator. This assignment can then be reassigned.

**Pass single line** | **Pass complete assignment**

**Increased Speed**

**Simplified Workflows**

**Greater Productivity**
# SAP Voice Enabled Picking

## Productivity Driven Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skip bin</td>
<td>Skip bin allows operators to skip a location and return to the location and the end of the route to complete the pick / putaway task. This can be effectively used by the operator to optimize his/her route.</td>
</tr>
<tr>
<td>Reverse</td>
<td>The reverse function allows operators to reverse the direction of movement. This feature can prove extremely helpful in speeding up movement between aisles and avoiding obstacles that cause delays.</td>
</tr>
<tr>
<td>Countdown</td>
<td>The countdown feature allows operators to count down in case of quantity inputs. This allows a more natural and error free approach to counting quantity for picking / putaway.</td>
</tr>
<tr>
<td>Pick to ship / Pick to pack</td>
<td>SAP voice solutions simplify the task of consolidation and packing with “pick to tote” and “pick to shipping box” features.</td>
</tr>
</tbody>
</table>

**Increased Speed**  
**Simplified Workflows**  
**Greater Productivity**
SAP Voice Enabled Picking

**Productivity Driven Features**

These features help to increase productivity and pick accuracy. These can be performed without exiting from the picking transaction.

- **Material Inquiry**
- **Bin Inquiry**
- **Auto Replenishment**
- **Pick from alternate bin**
- **Cycle Count / Zero Stock Check**
- **Count Down**

**Increased Speed**

**Simplified Workflows**

**Greater Productivity**
## SAP Voice Enabled Picking

### Accuracy Driven Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material Inquiry</td>
<td>Material inquiry allows operators to pull up information on a particular material without the need to exit the current task. Once the inquiry is complete, operators can return to their original task.</td>
</tr>
<tr>
<td>Bin Inquiry</td>
<td>Operators can also call for a bin inquiry which allows them to query bin information without dropping the task at hand.</td>
</tr>
<tr>
<td>Serial number support</td>
<td>SAP voice solution supports scanning serial numbers at the time of picking.</td>
</tr>
<tr>
<td>Short picking</td>
<td>Supports both short quantity pick and zero quantity pick.</td>
</tr>
</tbody>
</table>

- **Increased Accuracy**
- **Reduced Returns**
- **Greater Savings**
SAP Voice Enabled Picking

**Accuracy Driven Features**

**Scan based picking / putaway**
Operators can now use scanning functionality to input a variety of fields. This eliminates the possibility of human errors. All scan enabled fields can also be read out in case scanning is not possible.

- Batch numbers
- Serial numbers
- Vendor barcodes
- Bin verification / check digits
- Material numbers
- Other barcodes (for ex. UDI)

**Zero Stock Check**
System asks operator confirm the remaining stock when the bin stock goes to zero. Discrepancies are reported to the cycle count team.

**Batch managed product support**
SAP voice solution supports handling batch managed products. This way, the operators do not have to worry about picking the right product from a wrong batch.

**Increased Accuracy**
**Reduced Returns**
**Greater Savings**
SAP Voice Enabled Picking

On demand information with Custom vocabulary

With voice, operators can request for information on demand. The vocabulary used is tailored to suit the business of clients by incorporating terminologies and lingo they are comfortable with. This greatly enhances the comfort levels of operators and allows a more natural interaction with the system.

“How much more?”

“How much more?”

“Last bin”

“Last order”

“Last pick qty”

“Remaining items?”

“Help”

“Report problem”

“Material description”

“Wave info”

“Say again?”

“Batch info”

“New assignment”

“Material inquiry”

“Transfer order”
SAP Voice Enabled Solutions

- Production
- Cycle Counting
- Audit at door
- Loading
- Replenishment
- QM
- IM
- WM
- EWM

SAP
Broad use of Voice within the warehouse

Replenishment
- Case
- Business Benefit
- Pallet/RF
- Exceptions

Selection
- Case
- Each-to-Tote
- Batch Orders
- Cluster Picking

Put-Away
- Zero Stock
- Freezer
- Reverse Order Flow

Put-to-Store
- Box/Case
- Pallet ID License
- Overrides/Shortages

Other Workflows
- Receiving
- Transfers
- Cycle-Counting
- Interleaving Tasks

Additional Highlights
- A Multi-lingual Workforce
- Catchweight
- Building Pallets to Ship
- Interleaving Tasks
## SAP Voice: Sign on & Zone Selection process

<table>
<thead>
<tr>
<th>Talkman</th>
<th>Operator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welcome to the Almasons Voice system.</td>
<td>Ready</td>
</tr>
<tr>
<td>Current operator is John Doe. Say ready.</td>
<td></td>
</tr>
<tr>
<td>Password?</td>
<td>5 4 6 7</td>
</tr>
<tr>
<td>Process?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Talkman</th>
<th>Operator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone Selection</td>
<td></td>
</tr>
<tr>
<td>Zone?</td>
<td>{Work Zone}</td>
</tr>
<tr>
<td>Zone?</td>
<td>{Work Zone}</td>
</tr>
<tr>
<td>Zone?</td>
<td>No more</td>
</tr>
</tbody>
</table>
### SAP Voice: Work Induction & Picking Example

<table>
<thead>
<tr>
<th>Talkman</th>
<th>Operator</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Order?</strong></td>
<td>&lt;Scan order&gt;</td>
</tr>
<tr>
<td><strong>SAP Voice supports auto assignment of work</strong></td>
<td>on queue or manual work induction</td>
</tr>
<tr>
<td><strong>Order?</strong></td>
<td>&lt;Scan order&gt;</td>
</tr>
<tr>
<td><strong>Order?</strong></td>
<td>No more</td>
</tr>
<tr>
<td><strong>Wave has 2 orders with 30 materials</strong></td>
<td>Ready</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Talkman</th>
<th>Operator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aisle SA</td>
<td>Ready</td>
</tr>
<tr>
<td><strong>Location 02BA1</strong></td>
<td>&lt;scan verification code&gt;</td>
</tr>
<tr>
<td><strong>Verification code is customizable. It can</strong></td>
<td></td>
</tr>
<tr>
<td><strong>be bin number, check digit, or material</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Pick Two</strong></td>
<td>2</td>
</tr>
<tr>
<td><strong>Put in 0394</strong></td>
<td>147</td>
</tr>
<tr>
<td><strong>System automatically suggests next pick</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Location 03BC1</strong></td>
<td>&lt;scan verification code&gt;</td>
</tr>
<tr>
<td><strong>Pick Five</strong></td>
<td>4</td>
</tr>
<tr>
<td><strong>You said 4, asked for 5, is this a short</strong></td>
<td></td>
</tr>
<tr>
<td><strong>product?</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Put In 0416</strong></td>
<td>890</td>
</tr>
<tr>
<td><strong>When task is complete operator will hear</strong></td>
<td></td>
</tr>
<tr>
<td><strong>assignment complete</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Assignment Complete</strong></td>
<td>Ready</td>
</tr>
</tbody>
</table>
# Global and Custom Commands

## Talkman Global Commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Say Again</td>
<td>Repeats the last thing the Talkman said</td>
</tr>
<tr>
<td>Sign Off</td>
<td>Sign off of the voice system</td>
</tr>
<tr>
<td>Talkman Help</td>
<td>Gives help for current prompt</td>
</tr>
<tr>
<td>Talkman Noise Sample</td>
<td>Re-Analyzes environment noise</td>
</tr>
<tr>
<td>Talkman Report Problem</td>
<td>Saves a snapshot of device log</td>
</tr>
<tr>
<td>Talkman Sleep</td>
<td>Puts device to sleep</td>
</tr>
<tr>
<td>Talkman Wake Up</td>
<td>Wakes the Talkman</td>
</tr>
</tbody>
</table>

## Custom Commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Batch Size</td>
<td>Speaks current UOM</td>
</tr>
<tr>
<td>Cancel</td>
<td>Cancels out of material inquiry. Clears all entered TOs. Cancels out of PNew and returns to previous order.</td>
</tr>
<tr>
<td>Clear Zones</td>
<td>Clears all selected zones.</td>
</tr>
<tr>
<td>Description</td>
<td>Speaks current material description</td>
</tr>
<tr>
<td>Item Number</td>
<td>Speaks current material number</td>
</tr>
<tr>
<td>Location</td>
<td>Speaks current location</td>
</tr>
<tr>
<td>Material Inquiry</td>
<td>Enters material inquiry function</td>
</tr>
<tr>
<td>New Assignment</td>
<td>Enters PNew function</td>
</tr>
<tr>
<td>New Zone</td>
<td>Allows the operator to return to the zone entry screen to register a different zone for picking</td>
</tr>
<tr>
<td>Pass Assignment</td>
<td>Passes the current assignment batch</td>
</tr>
<tr>
<td>Repeat Last Pick</td>
<td>Repeats information about the last pick.</td>
</tr>
<tr>
<td>Reverse Pick</td>
<td>Enters reverse picking functionality</td>
</tr>
<tr>
<td>Short Product</td>
<td>Marks the current location as shorted.</td>
</tr>
<tr>
<td>Skip Slot</td>
<td>Skips the current location</td>
</tr>
<tr>
<td>Total Lines</td>
<td>Speaks the total lines in batch</td>
</tr>
<tr>
<td>Transfer Order</td>
<td>Speaks the current TO number</td>
</tr>
<tr>
<td>Wave Info</td>
<td>Speaks the number of total lines and lines remaining in the current wave</td>
</tr>
</tbody>
</table>
SAP Voice: The Architecture

Voice Solution | Translation Layer | SAP Environment

Voice Solution

Translation Layer

SAP WM/EWM

Protocol Translator

Vocollect

ITS MDE Transactions

XML
Device and Accessories Overview

- Talkman A730 device
- SRX2 headset electronics module
- SRX2 headband with detachable ear pad
- SRX2 headset’s detachable mouthpiece
- Belt and holster
Device Overview: Chargers

A700 series 6-device charging bay

A700 series 12-device battery charger

SRX2 headset 20-battery charger
## Device Overview: Buttons and Functions

### Talkman Device Buttons

<table>
<thead>
<tr>
<th>Button</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Play / Pause</strong></td>
<td>Wake up or put to sleep device</td>
</tr>
<tr>
<td></td>
<td>Exit operator menu</td>
</tr>
<tr>
<td><strong>Operator (Person)</strong></td>
<td>Enter operator menu,</td>
</tr>
<tr>
<td></td>
<td>Confirm action in menu</td>
</tr>
<tr>
<td><strong>Plus +</strong></td>
<td>Scroll forward through menu options</td>
</tr>
<tr>
<td><strong>Minus -</strong></td>
<td>Scroll backward through menu options</td>
</tr>
</tbody>
</table>

### Operator Menu Layout

- Change Task
- Noise Sample
- Report Problem
- Battery Status
- Retrain Word
- Change Operator
- Change Speed
- Change Speaker
- Change Pitch
Device Management: Voice Console

There are no records to display.
SAP Voice: Ready to Deploy Solutions (SAP Voice RDS)

- Zone based picking
- Multiple orders picking from same bin
- Pick directly to
  - Shipping boxes
  - Totes
- Piece picking
- Rush order picking
- Short picking
  - Zero pick
  - Short quantity
- Serial number picking
- Skip bin and return later
- Reverse pick
- Material Enquiry & Bin Enquiry
- Pass assignment
  - Pass complete assignment
  - Pass single bin
- Pick, Pack and Ship
- Load by Handling Unit
- Load by Delivery
- Batch managed product picking
  - System guided
  - Operator guided
- Scan based picking
  - Batch numbers
  - Serial numbers
  - Vendor barcodes & Material numbers
  - Bin check digits
  - Other barcodes like UDI etc.
- Box picking, Pallet picking
- Production Staging
- QA / Audit at Pack Station
- Putaway
- Cycle Counting
- Goods Receipts & Unloading
- Replenishment and Bin to Bin Transfer
- Labor Management
SAP Voice: Labor Management Reports

✓ Pick time
  • By product
  • By Operator
  • By Bin
  • By pick order

✓ Idle time
  • By Operator
  • By Shift

✓ Travel time
  • By Operator
  • By Shift

✓ Wait time
  • No work available

✓ Short Picks
  • By Operator
  • By Bin

✓ Pass Assignment
  • After bin scan
  • Before bin scan

✓ Bin Exceptions
  • Bin blocked
  • Zero stock exception
  • Bin Inquiry

✓ Break time (customizable)
  • Lunch
  • Bio
  • Meeting
  • Battery Change
  • Training
  • House Keeping
  • Inventory Adjustment
  • Other
  • …

✓ System processing time
  • Time taken to assign task
Procuring SAP Voice Enabled Solutions

SAP Voice enabled solutions are listed in SAP’s online store or at SAP Partner websites. To procure it from SAP store,

- Go to SAP’s online store

- Search for Voice Solutions
SAP Voice: What to Consider

✓ Select the right device for warehouse operators
  • Wireless headsets are preferred
  • Select headsets that are comfortable
  • Evaluate if scanners are required

✓ Select the right hardware vendor

✓ Select SAP Certified Solutions

✓ Select the right implementation partner who can take the complete ownership i.e.
  • Supply hardware
  • Implement voice
  • Configure SAP
  • Train operators and IT team
  • Provide post go-live support

✓ Typical project duration is 8 weeks to 12 weeks
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