



VOICE-ENABLING YOUR HIGHJUMP WAREHOUSE





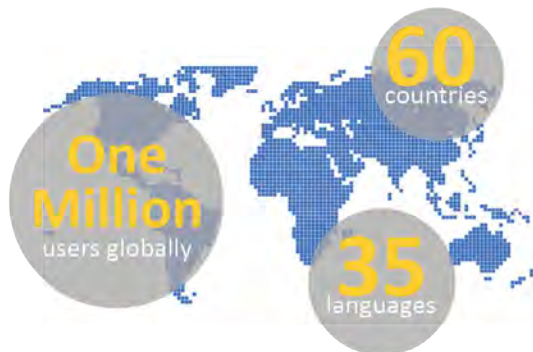
INTRODUCTION	3
AN ESTABLISHED HISTORY OF VOICE	4
GOING BEYOND PROMISES TO PROVE POTENTIAL	5
DETERMINING ACCURACY IMPROVEMENTS	6
TOTAL SAVINGS	8
NEW-HIRE TRAINING SAVINGS	9
OTHER SAVINGS	10
TYPICAL USES FOR VOICE	11
VOICE ALTERNATIVES	12
PAPER/LABEL PROCESSING	13
RF SCANNING TERMINALS	14
PICK-TO-LIGHT (PTL)	15
WEIGHING THE POTENTIAL BENEFITS OF VOICE	16
MEASURING GAINS IN PRODUCTIVITY AND ACCURACY	19
QUANTIFYING BENEFITS	20
HOW IT WORKS	21
BUILDING THE BUSINESS CASE	22
CONCLUSION: MOVING FORWARD WITH VOICE	23

INTRODUCTION

Voice technology helps HighJump users extend their logistics and fulfillment processes. It offers the promise of hands-free, eyes-free, wireless access to the information needed to drive key warehouse processes and has become an important component in the success of many IT strategies.

Like the traditional RF-based scanners, voice solutions center on a small, wireless mobile device. The difference is that voice delivers instructions verbally through a headset and captures responses using a microphone, eliminating the need to stop, look at a screen, and key in a quantity or scan a barcode. Coupled with a wireless headset, voice users can completely remove the need to have the mobile device on their body, offering even more freedom of mobility compared to traditional RF units.

VOCOLLECT VOICE BY THE NUMBERS



\$5 billion
in products moved daily



200+

implementations into
HighJump Warehouse Advantage,
Edge and 3PL platform

Implemented Industries include:



- Retail
- Cold Storage
- eCommerce
- Wholesale and Distribution
- 3PL
- And more!

AN ESTABLISHED HISTORY OF VOICE

Voice has a long history of being implemented into the HighJump warehouse environment, with the first implementation dating back more than a decade. Since then, the technology has matured and evolved, as HighJump users have become increasingly focused on process improvements for their logistics and fulfillment. Voice technology now plays a major role within the warehouse and distribution center, and offers native integrations to many platforms, including HighJump.



REAL-LIFE SUCCESS STORY: Harbor Wholesale

More than a decade ago, Harbor Wholesale chose voice after struggling with the data entry and productivity levels associated with paper picking. After implementing voice, they were able to achieve the metrics they were seeking, while sustaining the long term growth they never thought possible.

"Voice has allowed us to grow exponentially, and I can honestly say there is no way we could have sustained this level of growth without it."

-Noah Skelton, Warehouse Manager and Technical Operations Specialist, Harbor Wholesale

After integrating voice into their warehouse, Harbor Wholesale experienced a 50% increase in productivity, a reduction in training time of nearly 200%, and the ability to keep the same accuracy numbers with half the checking procedures.



GOING BEYOND PROMISES TO PROVE POTENTIAL

With proven results of increased productivity, accuracy, safety, and a more flexible infrastructure, it's no wonder the interest in voice technology continues to grow. Trade journals, vendor product literature, and other industry publications are full of customer case studies and client testimonials making a compelling business case for the technology. Anyone who has worked with voice knows it has the potential to deliver on its promises.



So how does voice actually stack up in the warehouse? Are claims about benefits and quick ROI valid?

Obviously, the answers to these questions vary on the nature of the business that will be implementing the technology. As with any technology investment, voice implementations need to be built on a solid business case in order to truly succeed. The depth and components of this justification will vary across operations, but it should always start with a thorough understanding of the operational and business requirements.



DETERMINING ACCURACY IMPROVEMENTS

1

Step One: Determine what errors are costing your operation annually.

20,000 units per day x (5 errors per 1,000) x 260 days per year = 26,000 errors per year x \$8 per error = \$208,000

2

Step Two: Determine what errors will cost you if voice is implemented and the error rate is reduced to 1 error per 1,000. (<1 error per 1,000 is common with voice)

20,000 units per day x (1 error per 1,000) x 260 days per year = 5,200 errors per year x \$8 per error = \$41,600

3

Step Three: Subtract the cost in Step Two from Step One to calculate the potential savings.

Accuracy			
	Percentage	Errors	Cost
Without Voice	99.5%	26,000	\$208,000
Expected with Voice	99.9%	5,200	\$ 41,600
Savings		20,800	\$166,400

DETERMINING ACCURACY IMPROVEMENTS

Step Four: Determine the labor savings if associates become **15%** more productive, i.e., the same work could be accomplished with **15%** less FTEs (full-time equivalents).

18 associates x .15 = 2.7 FTEs

Step Five: Calculate the resulting labor savings in dollars.

\$18 per hour x 40 hours per week x 52 weeks per year x 2.7 FTEs = \$101,088

Productivity		
	FTE	Cost
Without Voice	18	\$673,920
Expected with Voice	15.3	\$572,832
Savings	2.7	\$101,088

TOTAL SAVINGS

6

Step Six: Compare the total investment price to the sum of Step 3 (potential savings from improved accuracy) and Step 5 (potential savings from increased productivity). If the total investment price is less than the first year of savings, the payback will be under one year.

Summary	
Accuracy Savings	\$166,400
Productivity Savings	\$101,088
Savings	\$267,488



TYPICALLY VOICE SYSTEMS PAY FOR THEMSELVES WITHIN THE FIRST 9 TO 12 MONTH.

NEW-HIRE TRAINING SAVINGS

Companies using voice-directed work site significant reductions in the cost of new-hire training.



MOST SEE A COST REDUCTION OF ROUGHLY 66%, BUT SOME SEE MUCH MORE.

The training tools provided with the voice system enable workers to self-train using web based tools, and provides trainers with the ability to monitor and coach multiple workers in the same or less time than one-on-one training previously took.

Consider the calculation below as an example of the savings related to training new employees:

Number of new employees trained annually: 9
Current training hours attributable to device/system: 24
Current cost of new-hire training: \$3,888
Trainer/Supervisor hours (3 for 24 hrs. @ \$25): \$1,800
Total current training expense: \$5,688

New-Hire Training			
Current Training Cost			\$5,688
Expected with Voice (66%)	Total New-Hire Hours	8 hours	\$1,296
	Total Trainer Hours	5,200	\$ 200
Savings per New Hire			\$4,192

Consider also the elimination of battery changes: An example scenario could be a DC using 20 pickers per shift on two shifts, and spending "only" 5 minutes per picker, per shift, changing batteries.

**5 minutes per shift per picker x 2 shifts per day x 20 pickers per shift x 260 work days per year =
52,000 minutes or nearly 867 hours annually lost to battery changes.**

OTHER SAVINGS

In addition to accuracy and productivity savings, which typically lead to a favorable ROI, there are other potential savings as well. Consider some of these possibilities:

Reduction in Safety Incidents: With voice, workers' eyes are up and looking ahead at their work and their surroundings. They are completely aware of their environment, including the lift trucks and other hazards that can cause injury. They no longer have their eyes glued to a piece of paper or a screen, and their hands are not occupied holding clipboards or scan devices, freeing their eyes to focus on the task at hand. Workers are not only more productive and accurate; they are safer in the warehouse.

Ergonomic and Cost Effective Hardware: Vocollect's ergonomically pleasing and technology-leading solutions provide all workers, including those with disabilities or limitations, with a premier worker experience, leading to less turn over. Companies find savings in the durability of Vocollect devices, with lowered repair and maintenance costs often found associated with RF and pick-to-light hardware. Savings are also found with the removal of paper from distribution center (DC) workflows. Furthermore, the flexibility of the technology allows you to integrate voice into the unique needs of your warehouse.

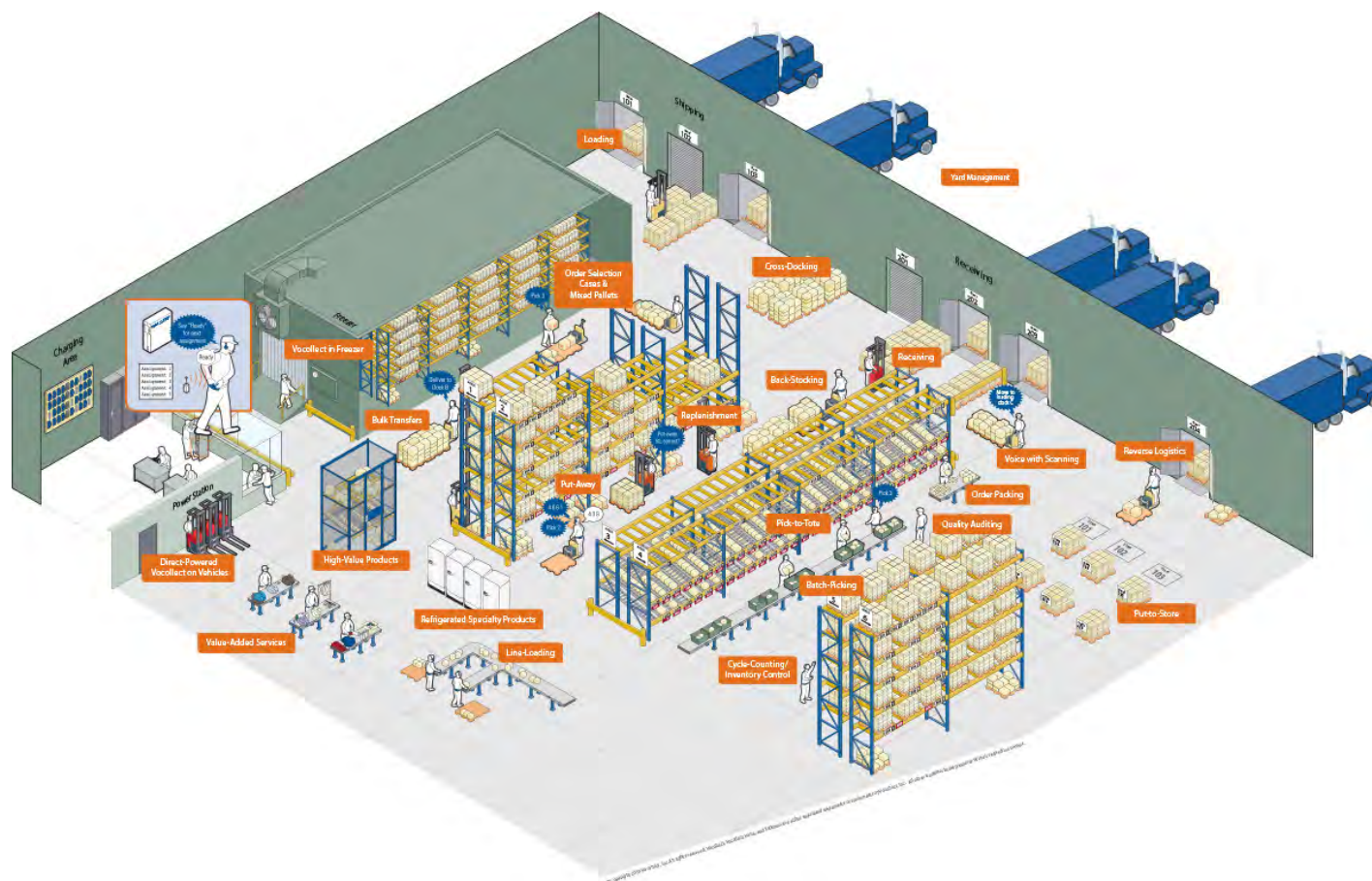
Process and Technology Efficiency Gains: From training new employees to faster ramp up at the start of a shift, productivity gains are found everywhere in the DC with voice. The whole purpose of voice-directed work technology is the creation of an efficient and effective workforce. That goal requires great training, but great training for new employees can be especially challenging. The cost of training a new-hire also includes the cost of the trainer or supervisory resource assigned in one-on-one efforts to bring the new hire up to speed.

The list of areas of potential savings related to the implementation of a voice-directed work solution is very long. In addition to the topics discussed above, consider the other areas such as reducing or eliminating order audits. You can also calculate paper related costs such as printer maintenance, paper costs, and administration of print media such as bursting, collating, and distribution that will be reduced or eliminated with voice. When you combine or interleave voice-directed work with supporting work flows such as replenishment and put away, the potential savings are increased even more.

TYPICAL USES FOR VOICE

Voice is typically used to support tasks such as order selection, put-away, replenishment and cycle counting within the warehouse, but it can be deployed into many other areas as well. Industries with a high degree of human touch, such as Grocery and Food and Beverage, were early to embrace voice technology. However, the technology has made significant gains in other industry segments, including automotive service parts, retail, 3PL, eCommerce, manufacturing, wholesale and distribution.

Picking, or selection, remains a core focal point of interest for most voice applications, given its proportion of overall labor activity in the DC and its direct impact on customer service levels. However, the use of voice technology can be expanded throughout the entire warehouse, with applications including receiving, cycle counting, put-away, put-to-store, replenishment and many more.



VOICE ALTERNATIVES

The most commonly cited voice alternatives are paper/label processing, RF terminals with barcode scanning, and pick-to-light.

	Paper	RF Scanning	Pick-to-Light
Productivity	Vocollect is 10-15+% faster	Vocollect is 15-25+% faster	Same
Accuracy	Vocollect has 10-20 less errors per 1,000	Vocollect has 2-4 less errors per 1,000	Vocollect has 2-4 less errors per 1,000
Training	Vocollect reduces time by 50%	Vocollect reduces time by 50-65%	Similar Training Effort
Issues	Lack of real-time associate visibility and accountability Lack of real-time inventory, people and system updates Difficult to batch-pick Data entry errors Labor and materials cost to handle paper Not hands or eyes free	Average 2-3 weeks of training for associate to be self-sufficient Operator is distracted: data entry, read, scan Safety issues (head-down) Not ergonomic Not hands or eyes free Battery issues Risk of equipment damage	Inflexible Expensive to add additional SKUs Can't efficiently manage two order selectors in one zone Difficult to batch-pick Sized based on SKUs vs. number of people on floor Thousands of points of failure (we are talking about lights...)

PAPER/LABEL PROCESSING

Paper/label processing is typically coupled with after-the-fact data entry using desktop terminals. Associates perform warehouse tasks off of pick lists, put-away labels, printed VAS instructions, and other paper documents. Upstream processes (such as how the information is sorted on the documents), and downstream processes (such as scan and verify on a desktop terminal), directly impact paper/label processing's performance and functionality.

Paper/label processing is thought of as a good fit for smaller operations with relatively straightforward transaction requirements. Even operations that rely on RF scanning for the bulk of transactions usually employ paper/label processing for some functions. It can be purely a manual proposition or part of an automatic flow, such as a label case pick-to-belt, where the pick is confirmed by an in-line conveyor scan.

Voice vs. Paper

While paper is a great starting point for many smaller operations, it tends to be a barrier to large scale growth and improvement. Paper completely eliminates the ability for real-time visibility into inventory, employees, or systems. The entire process is held until the data entry process begins, and that process is prone to errors.

Additionally, having workers burdened with paper handling slows down the processes that are key to the functioning of your DC. Having to pick up and put down clipboards removes the workers attention from the task, and can lead to unwanted errors or mispicks.



RF SCANNING TERMINALS

RF scanning terminals have long been considered a prerequisite for larger, more complex operations. However, RF scanning can be found in all different types and sizes of operations primarily due to direct support by most warehouse management systems. Even operations running non-RF enabled legacy fulfillment systems can turn to automated data collection software for this functionality.

RF scanning offers some distinct advantages over paper/label processing. It can provide positive verification that the warehouse associate is at the right location or picked the correct SKU through a barcode scan or key entry. Work can be pushed out to associates based on location and task priority instead of handed out from a manually managed queue. Transaction data is captured in real time as associates perform tasks. Furthermore, RF scanning makes some functions like multi-order cart selection possible or more practical than paper/label processing.

Voice vs. RF Scanning

Prior to voice, no other technology had a greater impact on the evolution of warehouse management systems than mobile or Radio Frequency (RF) scanners. While they are popular with many companies, RF and barcode scanners do have some drawbacks. Training on RF scanners can be extensive, with some operations requiring up to three weeks before workers are self-sufficient. Once fully trained, these workers are still distracted with something in their hands, and are unable to complete warehouse processes without picking up and putting down the scanner.

Additionally, maintenance costs for the devices can be high, as many workers drop or mishandle the scanners during use. This can lead to expensive screen or keyboard replacements, as well as the need for extra equipment to compensate for the damaged units.



PICK-TO-LIGHT (PTL)

Pick-to-Light remains a popular selection technology due to its ability to support high pick rates and its ease-of-use. It is typically used in a zone-based, pick and pass flow where an associate scans a tote or carton barcode label. The PTL software activates light displays for every location that shows the required quantity needed for the tote or carton. The associate walks the zone, selecting SKUs and confirming picks by pressing display buttons. Pick quantities can be shorted or increased by button presses. Displays can also be provided to show SKU, order, or other relevant information. Some vendors even have LCD displays that show SKU pictures.

Also, as its name implies, PTL technology is about the order selection process. Unlike the other technologies discussed in this paper, it is not employed to drive other warehousing functions such as receiving, put-away, and cycle counting. This means any investment in the technology cannot be leveraged beyond the confines of the PTL module and order selection process.

Voice vs. PTL

Pick-to-light presents some fit challenges that go beyond pick rates and raw productivity numbers. It is an inherently more costly and complex technology that typically requires a significantly higher start-up investment and a relatively rigid product flow. Totes and cartons are generally routed between fixed pick zones via a conveyor system. Managing workflow can be an ongoing issue, because of daily workload fluctuations between zones that result in bottlenecks in some and under-utilization in others.

Voice offers much more flexibility to redeploy resources to match daily changes in overall workload on the warehouse floor. Furthermore, changing the configuration of a pick-to-light module can require additional changes to the light displays, communications backbone, and pick-to-light software as well as physical storage media and WMS changes. Reconfiguring pick modules supported by voice is a much simpler proposition that generally only requires labeling in addition to storage media and WMS changes.



WEIGHING THE POTENTIAL BENEFITS OF VOICE

There are a variety of potential benefits for employing voice within the distribution center, which have been documented based on actual case study data from real voice customers. Moreover, the quantitative benefits of Voice and associated metrics have been well documented in numerous trade journal articles and white papers.



Reported productivity increases usually range from 10-50%, with an average of 35%.

Occasionally, higher increases may occur. Those who upgrade from RF to voice will typically see significantly higher gains. There are also several instances where customers have at least doubled pick rates.



The typical accuracy rates for voice are at least 99.5%, with many customers reporting rates up to 99.99%.

Corresponding reports show a post-voice reduction in pick error rates range from 80-100%.

WEIGHING THE POTENTIAL BENEFITS OF VOICE

Some studies detail significant cost savings in supplies (moving from label to voice selection) and increased fill rates due to reductions in mispicks.

Figures for other benefits, such as improved safety and reduction in breakage, are also obtained, but rarely used, in the justification and analysis effort. Given that voice technology enables hands free and heads-up processing flow, these benefits make intuitive sense.



VENDORS GENERALLY SHOWCASE CUSTOMERS WHO OBTAINED AN INVESTMENT PAYBACK WITHIN 9 TO 12 MONTHS.

Voice appears to be an attractive investment proposition in the warehouse. But are the numbers realistic for a specific operation? While there is no reason to doubt the numbers, they must be viewed in the context of the starting point and processes involved.

WEIGHING THE POTENTIAL BENEFITS OF VOICE

While classifications and measurements may vary between different operations and applications, the general benefits of voice fall along the following lines:

- Increased productivity and pick rates
- Reduced errors and increased accuracy
- Improved throughput and fill rate
- Reduced supply costs
- Improved control and visibility
- Decreased training time
- Improved safety
- Reduced damage and breakage
- Faster worker training
- Enhanced worker satisfaction



MEASURING GAINS IN PRODUCTIVITY AND ACCURACY

Potential productivity gains can be quite significant for an operation moving from paper or RF scanning to a voice system. In general, these gains are due to a number of factors beyond the hands-free flow of voice, including:

Changes in pick process, such as moving from discrete order selection, using paper pick lists to multi-order cart selection, optimization of the pick path, and using functionality provided by the voice application software

Reduction in personnel needed for post-pick checking, packing, and auditing, due to positive pick verification of voice over paper picks

Real-time information on inventory levels, order status and picker transaction rates provided by the voice application software



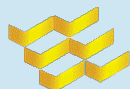
REAL-LIFE SUCCESS STORY: ContainerWorld

ContainerWorld, a beverage logistics company, had been struggling with label consistency in a 3PL environment. After searching for a solution that would improve compliance and make it safer for their workers to lift heavy cases, they settled on voice and never looked back.

"I don't know what we would be doing if we didn't have voice. It has allowed us to adapt to keep up with a perpetually changing market, which I don't think we could have done before."

—Aaron Christmas, Director of Strategy and Technology, ContainerWorld

After integrating voice into their warehouse, ContainerWorld was able to add a large amount of SKU's to their warehouse without sacrificing productivity, and experienced large gains in employee satisfaction and safety.



ContainerWorld

QUANTIFYING BENEFITS

Case studies can provide a good general indication of the potential of voice technology, but they tell stories for specific operations, making them difficult to directly relate to your distribution center. The potential fit of voice or any other selection technology is dependent on a variety of underlying factors, including:

- Order profile – lines per order and units per lines
- SKU weight and size
- Pick container weight and size
- Travel distance between picks
- Pick line layout and product accessibility
- Special data capture requirements such as lot, batch, serial number, or catch weight
- Workforce composition, including percentage of temporary workers
- Growth potential and need for flexibility
- Functionality of the supporting software application

Since these factors can vary across operations, building a business case for voice should be done on an individual basis. Benefits can be quantified by conducting pilot tests or by completing an in-depth ROI analysis after a review of your operations.

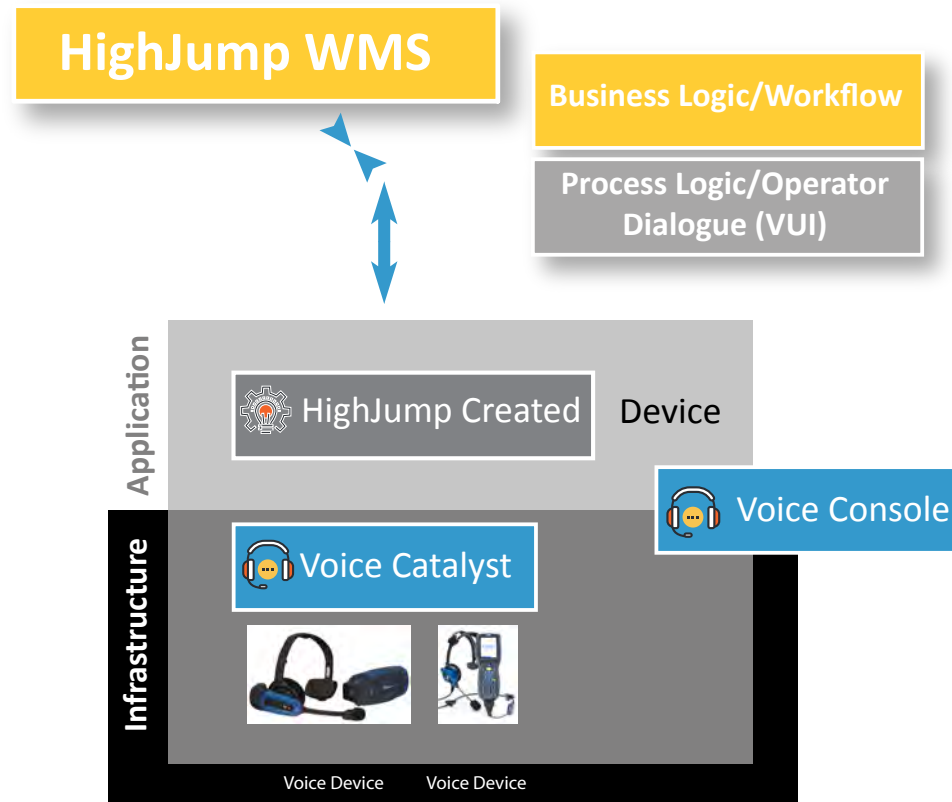
How much could you be saving with voice?

If you're considering investing in voice for the warehouse, it is critical that you know how much money will be saved with voice, and how soon you can expect an ROI. Schedule a risk-free ROI Analysis with one of our voice experts to get the answers to these questions, and find out if voice is feasible for your operation.

[REQUEST MY RISK-FREE ROI ANALYSIS](#)

HOW IT WORKS

Although HighJump offers multiple different platforms, the basic process of connecting voice to your HighJump system is the same no matter what you are using in your warehouse. The assignment, whether it be for picking, replenishment, or another workflow, originates in your HighJump WMS. The assignment is then sent to the voice application, where it is translated from data into audible commands. The user on the warehouse floor then provides spoken responses to confirm the actions given by the commands. These responses are then turned into data, sent back through the voice application, and transmitted back into your WMS for live-time updates.



Voice Architecture

BUILDING THE BUSINESS CASE

Building a business case for voice or any other technology in the warehouse requires careful delineation and quantification of benefits and costs. It entails an ability to detail current processes and requirements, map how these processes will change, and plan how requirements will be supported using the new technology. Some key factors to keep in mind when evaluating voice for a particular warehouse operation are:

Keep the proper goal in mind: The objective of any evaluation is not to figure out how to get voice into the warehouse. It is about selecting the best tool for the job.

Do your homework: Operations managers do not need to become experts in the technology to consider its use. However, anyone evaluating voice needs to know enough about its usage, alternatives, benefits, components, cost structure, and integration to make an informed decision.

Put together the right team: Put together the right team: Implementing voice into your HighJump warehouse requires a team that understands the inner workings of the HighJump platform and the voice software. By using a voice technology that is a part of the HighJump product suite, your voice team can work with the HighJump Services team to learn the ins and outs of your operation, and bridge the gap between what you want to achieve, and exactly how you will get there.

Be realistic and above board: The ability to adequately state benefits and costs is the crux to any successful evaluation of a technology or system in the warehouse. However, assumptions and estimates are an inherent component of even the most structured evaluation process. No matter how scrupulous an organization is in its process, there is always the potential of some unknown factor compromising the end results. Some operations respond to this risk by being conservative on benefits and factoring in a contingency line item on costs. Others bracket minimum, expected, and optimistic savings/gains by benefit. Regardless of the approach employed, any operation evaluating the technology needs to occasionally step back and question whether the numbers being employed are realistic.



CONCLUSION: MOVING FORWARD WITH VOICE

Voice is not for every distribution center or warehouse. However, the benefits cited in numerous voice case studies are real and may be obtainable for any individual operation. Voice has moved beyond cutting edge to become an established warehouse technology. Any distribution operation concerned with improving productivity, accuracy, and throughput should give the technology serious consideration.

This should start with the realization that voice is not a mutually exclusive proposition in the warehouse. Many operations that use voice employ other technologies such as RF scanning and pick-to-light. What it boils down to is selecting the right tool for the job.

The expansion of interest in voice is not a fluke or hype. Voice has a real role to play within the warehouse and rapidly has become a mainstream technology. While it may not be viable in the near or even long term for some operations, many others stand to gain from its employment. The first step in this process is determining how it stacks up within the warehouse. Given the evolutionary aspect of voice technology and applications, this is not a static proposition. If the technology is not a good fit today, it may be eminently viable tomorrow.



HighJump is a global provider of supply chain management software that streamlines the flow of inventory and information from supplier to store shelf. Named to the Inc. 5000 Fastest Growing Companies list for 3 years running, HighJump employs more than 440 team members worldwide, and supports more than 4,000 customers in 66 countries, ranging from SME business to global enterprises.

HighJump's functionally rich and highly adaptable end-to-end solutions help users achieve new levels of supply chain responsiveness, performance and profitability, from the warehouse to the storefront, from the desktop to the driver's cab. HighJump's suite of warehousing, manufacturing, transportation, distribution, mobile delivery and retail solutions allow users to seamlessly drive growth, customer satisfaction and revenue by delivering goods faster and more profitably.

HighJump: supply chain accelerated.

www.highjump.com

