



SOUNDADVICE

Making the Business Case for Voice: How to Show Return on Investment

An essay from Vocollect, Inc.

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Speaking to CIOs

The phrases “show return on investment”, “make a business case”, and “get the CIO’s buy-in” can strike fear in the hearts of many an otherwise competent and confident DC Manager. Ask you to pump up the team, to identify how well specific workers are performing, or to state your DC’s current safety record, and you are well in your element. But ask you to convince your CIO that a purchase of voice technology will be cost-effective and achieve payback in less than one year, and you are, well...shall we say, feeling a bit wary.

You’re already under unrelenting pressure to drive operational performance – to constantly find new ways to reduce labor costs, improve productivity, and increase order accuracy. When you go in front of senior managers to ask for major money your credibility is on the line, and you need to feel confident that you can understand and speak their language.

We understand your hesitation. But we also know that you can rise to the occasion, once you have a chart to help you navigate these unfamiliar waters. And that’s all they are – unfamiliar waters. The simple reality is that you understand your DC operational needs better than anyone, and if anyone can make the business case, it’s *you*.

This paper is designed to give you a tool to help you impress your potentially risk-averse leadership by speaking their ROI language, through using a calculation formula to present the performance and financial payback from a variety of voice-enabled applications. You will find it easy to understand and use...and you will feel confident in your ability to sell your leadership on your recommendations.

Voice and ROI

Over the past two decades, voice-directed work has been established as a strong alternative to labor-intensive technologies like paper-based systems, RF scanner-based systems, and pick-to-light (PTL). It has been widely documented that voice-directed work enables efficiencies that result in measurable operational gains.

Assignments for selection, replenishment, put-away and inventory moves generated by the warehouse management system (WMS) are transmitted via a wireless network to a wearable or mounted computer, which translates the assignment data into verbal commands heard through the headset that direct the person to an aisle or section of the warehouse and a specific slot or pick

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location. The team member then confirms the location by speaking a numeric identifier into his or her speech recognition headset. The team member then hears, for example, “Pick three.” He or she then picks three of that item and responds back, “three.” Then the next location is provided. When assignments are complete, the team member requests his or her next assignment from the available work queue.

Voice-directed work accelerates performance improvement, whether the worker is case-picking, piece-picking, replenishing, putting product away, back-stocking or line-loading. It also supports the ability to pick and pass, or to pick multiple orders simultaneously. Warehouse management and supervisors maintain control of the process from their computers so they can re-sequence assignments, obtain labor reports, and respond to shortages when – or even before – they happen, rather than later in the process.

The return on investment (ROI) from these projects often is substantial. And fortunately, the impact of voice technology is not difficult to calculate.

Building the business case

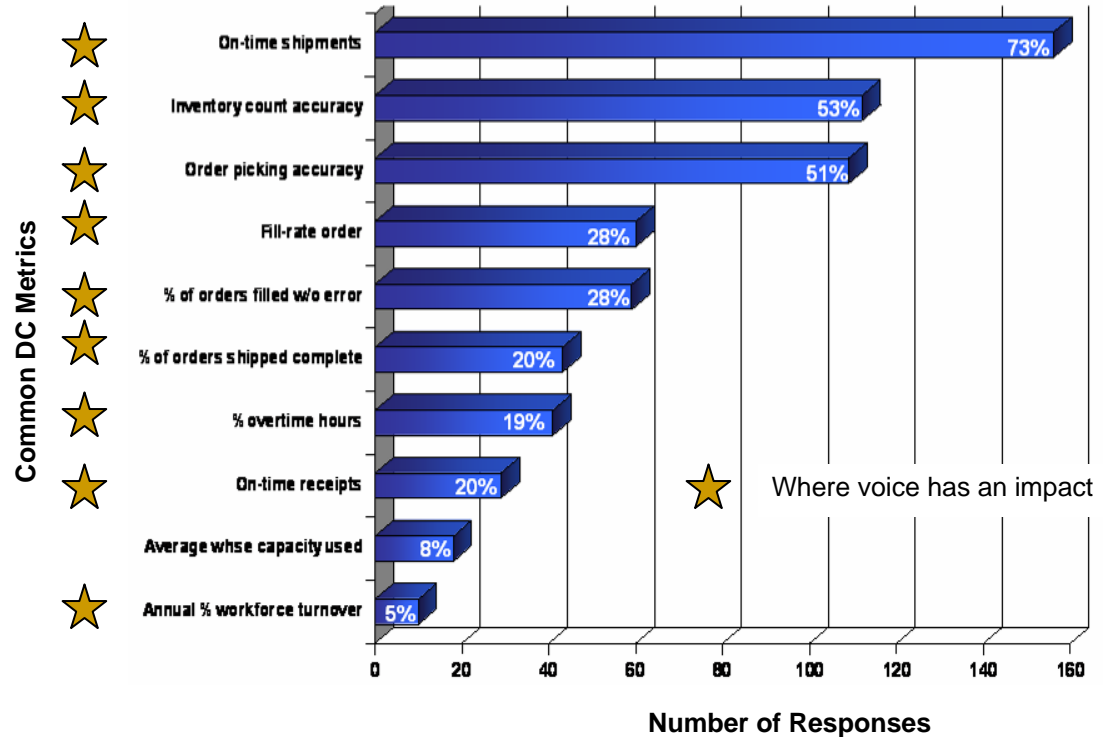
To begin developing a business case for voice-enabling a DC, you first must have a clear understanding of your operation’s current performance metrics and pain points. What percentage of your outbound shipments arrive on time and accurately? How much overtime does the team put in every month? Are worker compensation claims too high?

The following chart from *DC Velocity Magazine*¹ highlights research findings on the top 10 metrics companies currently use to measure their DC performance in 160 companies. The most common measurement indicators include on-time shipments, inventory count accuracy, and order-picking accuracy. *Interestingly, voice systems are proven to have an impact in nine of the 10 measurement indicators.*

Once you have assessed your overall DC performance, the next step is to identify those areas where improvement is needed – ones which will most affect your bottom line. If your DC could benefit from accuracy rates greater than 99.9 percent, productivity increases from 10 to 25 percent, increased throughput capacity, and/or reduced training time, then voice-directed work could be a considerable benefit to your organization.

¹ Source: 2005 DC Velocity survey “Dealing with Common Distribution Center Challenges” Reprinted with permission.

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Impact on performance and quality Improved accuracy

Typically, voice systems enforce order accuracy through the use of random check digits. The check digits are placed directly by the product and must be read when a worker is at the appropriate location. It won't allow the worker to continue unless he or she reads the appropriate digits, thus ensuring nearly 100 percent accuracy at all times. There is no dependence on a device display, or on a paper label or pick list, which can be misread.

Correctly filled orders means fewer returns for the distribution center. When a product doesn't need to be returned and reshipped, DC transportation costs drop. Labor is also reduced, because fewer products need to be received, put away, stored and shipped for a second time.

Increased productivity

Voice increases productivity by making workers more efficient. There is no need to scan a bar code or key in data on a handheld device. By eliminating the need to read a display screen, a paper pick list, or a purchase order, workers obtain their next assignment en route to the next location, thereby reducing the wasted time associated with travel. If you have engineered standards in place, productivity gains can be estimated by eliminating the unnecessary steps associated with paper and RF systems. Typically, productivity gains will range from 10 to 25 percent.

When compared to pick-to-light, voice offers similar productivity rates, but with much higher throughput potential. Because voice is product-independent, multiple workers can be in the same area at once, giving your management the flexibility to commit additional resources to an area with excessive demand. In addition, workers can complete multiple assignments simultaneously, thus greatly reducing their travel distance.

Other workforce benefits

Language barriers, turnover, seasonal fluctuations in part-time employees, and the cost of training are a few labor-related issues that often compromise both productivity and accuracy. However, voice keeps labor costs down by making it easy for your workers to be trained.

Within 15 minutes, voice technology learns individual team members' personal accents and unique speech characteristics. The worker is then ready to be directed through each step of the job assignment. Because it's easy to use, training is literally cut from weeks to hours.

Voice-dedicated devices are small enough to fit in a pocket, giving workers freedom of mobility. Also, because it is much simpler to speak into the microphone on the headset than to enter data manually, they achieve higher productivity. By tracking personal productivity and accuracy, it gives workers a sense of pride and ownership in their work. As such, they are more likely to be careful and complete tasks more quickly, thus speeding the order fulfillment process. Finally, in most cases, they'll stay on the job longer, which reduces your turnover and saves the cost of training new workers.

Calculating a simple ROI

The overall value of any technology purchase is largely judged by the ability to demonstrate strong ROI. The challenge is in being able to identify where it occurs and knowing how to calculate it. Once you clearly understand your overall supply chain needs, the value of voice can be identified by calculating the average savings as a percentage of project cost.

The example below determines savings due to improvements in accuracy and productivity for a DC which ships 20,000 cases per day over an eight-hour period. It assumes a cost-per-error of \$12² and 260 working days per year. *For example purposes only, case picking is shown, but the same calculation can be made for other areas of the DC, such as piece-picking, replenishment, and put-away.*

Questions About Your Case Pick Area

	Settings	Enter Value
1 What method do you currently use to pick orders?	Scanning	Scanning
2 How many cases do you pick per day?	20,000	Cases per day
3 How many errors do you have per 1,000?	5.0	Errors per thousand
4 How many total pickers do you have in the case pick area?	18.0	Pickers in case pick area
5 What is the average burdened wage rate for pickers?	\$18.00	Burdened wage per picker

ACCURACY SAVINGS

Step 1: Determine what errors cost your operation annually today.

- $20,000 \text{ cases} \div 1,000 \times 5 \text{ errors (per 1,000)} \times 260 \text{ days per year} \times \$12 \text{ per error} = \$312\text{k}$

² To calculate the cost of an error, review the sequence of events in the distribution process associated with correcting and finding errors. Additional handling, returns, audit processes, transportation costs, out-of-stocks at the store, poor customer service and additional clerical time are examples of areas in your supply chain which will incur additional costs due to poor accuracy. You will need to identify the specific areas and tasks in your supply chain affected by poor accuracy to calculate the cost of errors to your organization.

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Step 2: 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 \text{ cases} \div 1,000 \times 1 \text{ error (per 1,000)} \times 260 \text{ days per year} \times \12

Step 3: Subtract the cost in step 2 from step 1 to calculate the savings.

Accuracy			
	Percentage	Errors	Cost
Without Voice	99.5%	26,000	\$312,000
Expected with Voice	99.9%	5,200	\$62,400
Savings		20,800	\$249,600

PRODUCTIVITY SAVINGS

Step 4: Determine how much you would save if your workers became 20% more productive

- $20,000 \text{ cases} \div 8 \text{ hours per day} \div 18 \text{ workers (FTE [full-time equivalent])} = 139 \text{ cases per hour per worker}$
- A 20% labor improvement = 167 cases per hour per worker
- Subtract your labor cost using the above 167 cases per hour from the labor cost using 139 cases per hour to calculate savings due to productivity improvements

Step 5: Divide the total investment price by the sum of the savings from Step 3 (\$250k) and Step 4 (\$112k) and multiply by 12 to calculate the payback in months.

- If the total investment price is less than the first year of savings, the payback will be under one year. Typically voice systems pay for themselves within the first nine to 12 months.

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Productivity			
	Cases/Hour	FTE	Cost
Without Voice	139	18.0	\$673,920
Expected with Voice	167	15.0	\$561,600
Savings		3.0	\$112,320

OTHER POTENTIAL SAVINGS

In addition, your finance head will be examining the value and payback of this capital expenditure like any other type of company purchase that has tax implications. The laws for calculating tax benefits will vary from organization to organization and country to country, and only your finance professional can make this type of calculation for you. Tax benefits could range anywhere from 15 to 40 percent, depending on the nature of your organization's tax structure. Where calculations show little tax improvement or even a loss due to this purchase, you will need to state your case emphasizing the other key benefits (e.g., ROI, documented case studies showing a track record of success in other organizations). However, where your finance professional can identify a major tax savings, this can be the added benefit that spells the difference between "go" and "no go." In any event, sooner or later, your finance department will weigh in on this purchase.

Certain other benefits relating to increased ROI, such as that netted from reduced training time, improved customer satisfaction, less loss-time accidents, technology flexibility, and reduced turnover, can be more difficult to quantify. But they are definitely worth being factored into the mix wherever possible.

Conclusion

Organizations often view an investment in voice-directed work as one element in a broad management strategy to improve order accuracy, increase productivity, and reduce labor costs (including training time) in the supply chain. In labor-intensive, high-volume, high-SKU operations like manufacturing and distribution, voice demonstrates a direct payback to the bottom line – typically, in less than one year. With accuracy rates of up to 99.9 percent and greater and productivity increases of over 25 percent, voice-directed work has been demonstrated to pay for itself relatively quickly under most circumstances.

Voice-directed work has proliferated into markets beyond food distribution, such as retail, third-party logistics providers, healthcare, and consumer packaged goods. Many organizations in these sectors are using voice technology to reach higher accuracy and productivity levels than ever before while, at the same time, reducing operating expenses and maintaining a coveted competitive advantage.

About the Authors

Mark W. Miller is Industry Marketing Manager with Vocollect, Inc., based in the company's Pittsburgh, Pa., U.S. headquarters. His responsibilities include strategic planning, market research, and competitive strategy. Prior to joining Vocollect, he was for five years a Senior Consultant at a leading independent engineering and supply chain consulting firm.

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About Vocollect

Since 1987, Vocollect, Inc. has delivered dramatic improvements in productivity, accuracy, cost reduction and worker satisfaction for mobile employees. Vocollect's voice-directed work applications literally talk people through their daily tasks, replacing traditional work lists and cumbersome data capture methods with personal voice dialogs. The company's global network of resellers and supply chain performance experts enables more than 100,000 people on six continents to use voice to improve work every day. Vocollect is headquartered in Pittsburgh, Pa., U.S., and supports its clients and resellers through regional offices in Europe, Latin America and Asia. For more information, visit www.vocollect.com. Vocollect® and Voice-Directed Work™ are registered trademarks of Vocollect, Inc. All rights reserved.