WHITE PAPER

THE THREE BIGGEST MISTAKES IN DEPLOYING VOICE TECHNOLOGY

How to Avoid Them, Guarantee Success, and Maximize ROI

voxware
The Voice Is Yours™

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Voice technology has the potential to deliver substantial cost savings and quality improvements in warehousing operations. Now a mainstream best practice, voice-directed operations are gaining wide acceptance, and in tough economic times many companies are rightly looking to voice as a strategy for "doing more with less."

While there are many successful examples of voice technology in action, unfortunately the landscape is also dotted with failed deployments, cost overruns, and unmet expectations.

When a voice project fails, the organization has made one of the three biggest mistakes in deploying voice technology.

None of these mistakes is related to warehousing experience or implementation technique. They are not tactical mistakes made during deployment. Instead, they are strategic errors made during the evaluation phase, before the decision on specific voice technology.

When a strategy is right, tactical mistakes can be corrected. When a strategy is wrong, flawless tactical execution cannot compensate. This paper identifies the three biggest strategic errors companies make when evaluating voice technology. By understanding these mistakes, you can avoid them and maximize your return on investment from voice.

Mistake #1: Settling for a Consumer-Grade Voice Recognizer

A warehouse isn't a library. It's an active workplace where noise is produced from many sources, often unpredictably. Most voice recognizers are not designed to operate in such an environment, where forklifts whiz by, conveyor systems start and stop, doors raise and lower, heavy trucks come and go, temperature control equipment is running, and background noise fluctuates wildly.

Within this demanding environment, voice solutions must optimize high volume repetitive tasks. ROI is only achieved by incremental improvements consistently realized across thousands of tasks. Without near-perfect voice recognition across an entire shift, you can't succeed.

A system that recognizes a phrase one moment but cannot recognize the same phrase the next, when – say – a truck happens to start its engine will not deliver the results you need. A seemingly small deterioration in recognition accuracy translates into big losses in productivity and acceptance as workers are forced to repeat what they've said.

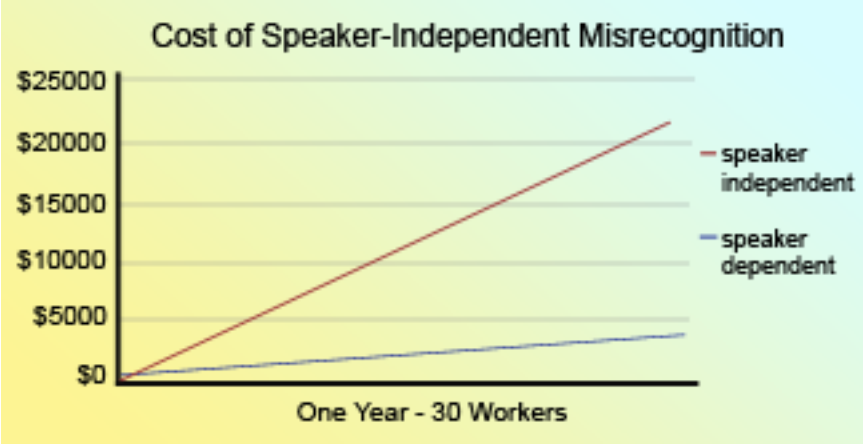

Figure 1

As interest in voice in the warehouse has grown, some vendors have rushed to cash in, flooding the market with offerings based on consumer grade speech recognizers. Often, after a voice deployment has failed, you will hear, "voice doesn't work." In reality, it was the choice of a consumer-grade recognizer that didn't work; most companies – even those with very noisy environments – are succeeding with voice by using industrial-grade voice recognizers.

Many solutions with consumer-grade recognizers tout the fact that user training of the recognizer is not needed. Such speaker independent systems are designed to recognize the prevalent dialog of just one language. But this "benefit" is actually the problem, since such a recognizer must trade recognition accuracy for sufficiently wide dialect coverage, no two speakers being exactly

alike. You want the users to train the software, so that recognition problems won't happen. The short time spent in training is paid back, usually within the first four working days, by near-flawless recognition that eliminates the need for workers to repeat themselves.

Buyers need to ensure that voice recognition software is industrial-grade and speaker-dependent. It must be proven in many warehouses, across a variety of industries, among a diversified workforce and where noise challenges have been surmounted.

Mistake #2: Thinking Voice is a Hardware Decision

Voice in the warehouse is no different from other high technologies. Original solutions were proprietary and customized. The first voice vendors manufactured every aspect of the solution: hardware, accessories, and software. They pioneered the "voice-dedicated" device – a wearable computer with no screen, keyboard or scanner that was engineered for voice. Some could only be programmed via a proprietary scripting language.

A lot of effort went into ergonomic design of voice-dedicated devices, and manufacturers emphasized engineering quality. In some cases the name of the voice computer suggested the device was the solution, which led to a lopsided view that overemphasized hardware.

Over time, forward-thinking vendors based their software on open industry standards such as VoiceXML and Internet protocols. As always happens in high technology, open software leads to open hardware – which in turn leads to wider customer choice and lower cost.

Very large deployments of voice technology have now been accomplished on devices from major manufacturers, using open voice software. Often, these are multi-modal devices with screens, scanners, and keyboards that can be used for other applications in addition to voice. While a voice-only dedicated device may be the right choice for some companies, the notion that it is the only choice has been clearly disproven by

Some of the Wearable Computers Used Successfully for Voice Deployments

Figure 2

marketplace experience.

Today the voice market is at the crossroads between the proprietary, closed systems of the past and the open products of the future. Vendors promote messages based on their traditional strong points. How can you separate fact from fiction?

It is vital to understand a voice vendor's business model: is it a software company, a hardware manufacturer, or a systems integrator who resells software and voice devices? Armed with a little knowledge, you can decode a vendor's message.

For example, when you hear that a dedicated voice device "is best for full time, intensive use," and that voice-capable multi-modal devices are only for part-time or less intensive use, you need to ask who is making this statement. Is it a manufacturer of dedicated voice devices, a system integrator who resells such devices, or a software company? Is such a statement borne out by the facts? No.

The plain truth is that you can succeed with numerous voice-capable devices. Voice is not a hardware decision. While hardware is important, by far the most crucial element in success with voice is the software. The most well-engineered hardware, if it is closed and proprietary, cannot overcome the limitations of its software.

Mistake #3: Failing to Plan for Change

Best in class warehouse operators run agile facilities. These are the companies who can implement business process changes with seeming ease. Becoming an agile warehouse doesn't happen by accident. But voice technology can sometimes be part of the problem rather than the solution. Why?

Companies can fall into the trap of buying a voice solution that is "built to fit" their business. While on the surface this seems to be a great idea, strategic thinkers need to probe deeper. A point solution is fixed in stone, and can only be modified by the vendor – for a fee and over a period of time. Because voice systems become mission-critical, they retard progress when the cost to change them becomes prohibitive.

For years voice vendors delivered customized point solutions geared to voice-enable today's operation – not tomorrow's. Distribution executives were later frustrated by the high cost and time required to implement what seemed like simple changes. With their hands tied, they could not move forward as they wanted.

After implementing voice, you might need to alter the business process. Companies add products to their business, change warehouse locations, and acquire other companies with their own distribution facilities. They may need to add new verification steps, refresh voice devices with units from a new supplier, or move to a new version of the WMS. All these changes are software-related, and your agility will be either enhanced or hindered by the voice software you choose. What are the criteria?

The first step in planning for change is to bring in a voice software product as opposed to a point solution. How can you tell if you are buying a product? Look for this:

- A track record of software releases made available to customers as part of their maintenance service.
- A roadmap of future releases to which customers can contribute ideas.
- A community of customers to whom the same base code-set has been delivered.

The second step is to ensure that the software product is modern and engineered for change. Three capabilities are essential:

- Adaptability

  The product must have an array of features that make change easy. Voice solutions should be assembled "building block" style, via a graphical studio. There should be adapters with pre-built integration for major WMS packages. In short – many of the things that are expensive to change with traditional voice offerings should be planned-for and an "adaptive software framework for voice" should exist.

- Portability

  The same voice application should be portable across many voice-capable devices. Most vendors use one set of code for one manufacturer's device,

and a different set of code for another. Portability is delivered only if the software product uses open standards and is engineered to be truly device independent.

- Scalability

  The voice solution needs to have enterprise-level features. It should support multiple operating systems, DBMS, and web servers – yet be architected to be independent of which infrastructure combination is chosen by the customer. It should have enterprise voice management facilities that make is possible to control all aspects of the voice solution across multiple warehouses from a central point.

Software Products vs. Point Solutions

Criteria	Software Product	Point Solution
Product release roadmap	✔	✘
Product release delivery history	✔	✘
New releases included in maintenance fee	✔	✘
Single code-set shared by all customers	✔	✘
Fixes/updates shared by all customers	✔	✘
New features without a programming project	✔	✘
Portability to new device without program-ming	✔	✘
Refresh to new device - no new license fee	✔	✘
Solution configuration without progamming	✔	✘
Central or distributed deployment options	✔	✘
OS independent architecture	✔	✘
DBMS independent architecture	✔	✘
Device independent applications	✔	✘

Figure 3

Voxware 3 – Voice Software for Modern Warehouses

How can you avoid these strategic errors? Understand three things: first, you need 99.9% voice recognition accuracy. Second, voice is not a hardware decision. Third, planning for change is what separates best in class companies from their competitors.

At Voxware, we have one simple mission: to empower voice self-sufficiency in the warehouse. Our focus is on the area that is leveraged to maximize ROI: software. Our product is Voxware 3.

Voxware 3 customers get up and running quickly with voice. They join a community of companies who use the same product, which is made continually stronger by the contributions of the customer base. Best of all, they have a voice solution that is engineered for change, which makes them agile and delivers flexibility for the future.