EPG® ACADEMY

On behalf of:

EPG® Ehrhardt Partner Group
Smarter Connected Logistics™

WHITE PAPER

GUIDE TO CHOOSING THE RIGHT VOICE SOLUTION

The devil is in the detail.

CONTENTS

EPG Ehrhardt Partner Group
Smarter Connected Logistics

EPG ACADEMY

PUBLICATION DETAILS

WHITE PAPER
Guide to choosing the right voice solution.

PUBLISHER
EPG – Ehrhardt Partner Group
www.epg.com

RESPONSIBILITY FOR CONTENT
EPG Academy GmbH

EDITORIAL

Dear reader,

What do you expect from a logistic system today? Have you perhaps noticed in recent months that flexibility is more important than you initially thought? Logistics companies are frequently finding themselves having to rethink and optimise their processes in view of changing requirements and factors specific to the environment in which they operate. The benefits offered by voice solutions, providing suitable flexibility, have been clear to see for many years – including when used in conjunction with automated systems. Around the world, companies big and small across a wide range of industries have been banking on voice solutions in their picking operations. However, not all voice solutions are created equal.

If you have already opted to use a voice technology solution, this white paper will provide some pointers on what to look out for when choosing a supplier.

Happy reading!

Your EPG ACADEMY team

COMMENT

BY PROF. DR. STEPHAN FREICHEL

The logistics sector operates in a highly dynamic market environment. Conditions are constantly changing, with the coronavirus pandemic being just one example. That is why solutions are needed that offer maximum flexibility and agility. More than ever before, companies today find themselves having to review and potentially realign their business strategies at ever shorter intervals.

Intralogistics needs to be able to meet these requirements: New sites have to go online with speed and stability. Customer requirements need to be optimally reflected in warehouse processes, with any changes, such as to cut-off times, contract structures, cross-docking volumes or the mapping of value-added services, requiring adjustments to be made – all while ensuring maximum cost discipline and process transparency. Buildings and technical infrastructure are not always ideal and suitable for long-term usage. The hall needs to be operational as early as tomorrow and then move locations the day after. Within the scope of projects, untapped potential can also be uncovered in ongoing operations to help enhance efficiency, with critical points often coming to light in the connections between the flow of goods and information along the supply chain.

So what's the solution? Logistics specialists need systems that can respond to the volatile environment. And here, people remain an integral part of the process – regardless of how much is automated. In the warehouse, there'll always be processes that work. Compared to automated systems, people and their cognitive skills are often the better option when it comes to control and execution. This is true not just for cost and performance targets, but also for the swift, stable implementation of changes using a market-oriented approach. It is important to remember that the right technologies can help employees in their work. This applies not only to facilities for the physical handling of goods, but also to the way orders are logged and handled in the warehouse picking area, handling area, trailer yard or air freight terminal at the point where there is an interface or connection to the information flow.

Voice systems have acted as an optimal interface between people and machines for a number of years now. Thanks to their ergonomics, adjustment options and robust design, they have proven very popular among workers. Used in connection with state-of-the-art software environments, their systems have proven be very user-friendly for IT and users alike. Use cases involving many companies that utilise voice systems highlight the improvement in process quality. This is based on very low error rates in picking compared with, for example, the use of lists or portable data terminals. Alongside investment, the aspects of error, operating and – increasingly – transaction costs play a key role for decision makers in companies when it comes to making adjustments over the life cycle of businesses, processes and systems.

Prof. Dr. Stephan Freichel is a professor for distribution logistics at the Faculty of Automotive Systems and Production at the Cologne University of Applied Sciences (TH Köln). He also works as an independent consultant for management and logistics.

Prior to these roles, Prof. Freichel spent many years in the logistics services, chemicals and automotive industries, holding roles such as board member and managing director along with other senior positions.

VOICE IS CONQUERING THE LOGISTICS MARKET

WHICH SYSTEMS CAN BE TRUSTED?

The pressure to continuously optimise logistics processes has been growing for years. Customers are placing a strain on delivery deadlines. At the same time, the range of goods on the market is increasing and competition is becoming fiercer. This also means, however, that intralogistics processes constantly need to become faster and more flexible, while at the same time being as cost-effective as possible. Voice solutions have proven to be a successful option in this agile and demanding environment and over the years have become the generally accepted standard. Today, you simply couldn't imagine the world of logistics without voice-controlled assistance systems, which have truly shaped the industry. The retail sector in particular is always on the lookout for solutions that offer greater speed and precision in order picking than paper lists, for example. Here, efficiency and speed are the order of the day. However, voice solutions have also established themselves in other industries over the years – and order picking is not the only area in which they are firmly on the agenda. The continuous development of voice recognition technology is unlocking completely new fields of application, such as in maintenance, inspection processes and production settings.

Today, the market is home to a variety of suppliers who are laying claim to the voice logistics crown. Although the systems may look identical at first glance, you will see some differences on closer inspection, especially with regard to the underlying technology. Voice recognition quality is one of the most important factors, as this can affect a voice system's performance in live operation, and thus have a crucial impact on efficiency.

WHAT TYPES OF VOICE SYSTEMS ARE AVAILABLE?

SPEAKER-DEPENDENT SYSTEMS

Many suppliers are still focused on developing speaker-dependent solutions. When using this type of voice system, onboarding employees becomes an arduous tasks as individual voice profiles have to be set up for each member of staff. Voice training is also required, which can take up a lot of time. If new terms have to be added due to a change to the process, for instance, additional time-consuming training is required as the voice dialogue also needs to be adjusted. This can represent a challenge, especially when it comes to temporary or seasonal workers, as the primary focus is on quickly getting them up to speed in order to tackle seasonal peaks. In addition, the speech patterns of employees may change during the onboarding process. Somebody just starting out will probably speak differently to when they've had two weeks working with the machine and are familiar with it. Additional training is not an uncommon occurrence in this case either.

SPEAKER-INDEPENDENT SYSTEMS

If the focus is on saving time, speaker-independent solutions are the better choice. But that's not the only reason why a number of companies are now offering systems that don't require individual voice profiles to be configured. The voice quality and recognition reliability of these systems are in most cases so sophisticated that even employees who speak a foreign language can get going straight away without a lengthy onboarding process. These types of solutions also recognize dialects and accents, providing yet another boost to performance.

GREATER SPEED, PUNCTUALITY AND FLEXIBILITY

WITH VOICE SOLUTIONS

For decades, the focus in logistics has primarily been on designing transparent processes and tracking specific orders. That's why the barcode, for instance, remains an established technology on the market to this day and is seen as an evergreen technology in the logistics sector. More recent solutions, such as track and trace, are also based on barcodes and rely on the identification and traceability of items.

> **"Given the high workload in intralogistics, ergonomics really is a, if not *the* decisive factor in favour of using voice systems."**
>
> *Stephan Freichel*

However, when it comes to the goal of enhancing efficiency, process ergonomics and quality, there really is no alternative to voice. And on top of that, the cost aspect also plays a part. Voice enables the rapid realisation of process efficiency improvements, leading to a quick return on investment. These are just some of the reasons why customers are increasingly leaning towards speaker-independent solutions that fulfil these goals when choosing a supplier. In addition, onboarding new employees is a much faster process than with speaker-dependent solutions as no voice training is required. Staff can therefore work productively from the start. Voice systems are generally much more ergonomic to work with than portable data terminals, which require users to keep looking at the display. This not only improves employee satisfaction, but also enhances process quality. And at the end of the day, reliable order fulfilment and happy customers are what it's all about.

WHAT REQUIREMENTS DO MODERN VOICE SOLUTIONS NEED TO FULFIL?

1 INCREASING EFFICIENCY

Voice solutions can help increase order picking performance by up to 20 percent in a very short space of time. That's because order picking is still the biggest cost factor in the warehouse. Voice can therefore help boost performance and significantly drive down costs.

2 CHANGES IN THE WORKFORCE

Especially in industries where the workforce changes frequently due to seasonal peaks, for instance, flexible voice systems are the solution. Speaker-independent systems don't require lengthy onboarding, meaning workers are productive from the get-go.

3 STAFF SPEAKING DIFFERENT LANGUAGES

With the increased hiring of warehouse logistics staff who speak different languages, voice systems can help provide support as they are available in all major languages thanks to their sophisticated technology. To this end, systems also need to be intuitive to use during live operation. Furthermore, additional training, for example to incorporate new terms, is not required in most cases.

4 STOCK RELIABILITY

It is not possible to keep track of inventories with paper lists. Using a voice solution connected to an overarching WMS or ERP system enables current inventories to be monitored at all times in a transparent manner. It also enables traceability for individual items, if necessary.

5 FLEXIBILITY

Logistics companies are faced with the challenge of delivering top performance at all times, even during uncertain times. The COVID-19 pandemic is the latest example of this. Especially in the food logistics industry, some companies had already reached their seasonal peaks in spring 2020 before the actual peak periods. This is an issue that can be remedied by flexible voice systems, which can be adjusted to meet changing requirements at any time. The voice recognition technology utilized in the leading solutions even works when staff are wearing face masks, which is now required due to hygiene standards.

“Planning systems for the next ten years, for instance, is no longer realistic, as the logistics market is just too dynamic. Flexibility is what’s required.”

Stephan Freichel

EVEN GREATER FLEXIBILITY: MODERN VOICE SOLUTIONS ALREADY GOING ONE STEP FURTHER

In order to meet the high requirements in logistics, some providers have significantly optimised the underlying technology of their solutions. The use of artificial intelligence (AI), for instance, enables increasingly large volumes of data to be processed. That’s why leading voice solution providers are also incorporating AI components into their voice software. As such, a new generation of voice solutions has established itself on the market alongside speaker-dependent and speaker-independent systems. The integration of AI components in the form of deep neural network technology offers a huge advantage in terms of saving time, ensuring that employees with a strong accent or dialect are able to get started straight away without any delays due to voice training. The deep neural network technology significantly increases voice recognition reliability and ensures that all employees can work safely regardless of whether they speak in dialect or with an accent – even when wearing a mask. This makes the voice process a lot more efficient as employees do not have to repeat themselves.

Spoilt for choice? If you're thinking of investing in a voice system, you should ask yourself the following questions before making up your mind.

CHECKLIST

CHOOSING THE RIGHT SUPPLIER

IS THE SOLUTION SPEAKER-INDEPENDENT?

Those looking for a long-term investment and expecting maximum performance are well-advised to opt for a speaker-independent solution. This is the only way to ensure fast and positive results through enhanced efficiency, performance and quality.

DOES THE SOLUTION FEATURE EFFECTIVE VOICE RECOGNITION TECHNOLOGY?

In industrial environments, high-performance voice recognition can only be achieved when the underlying technology meets the latest standards and can faultlessly recognise the voices of employees despite their dialects and accents. If you want to invest in a pioneering solution, it is worth inquiring about neural network technology.

IS THERE A COMPREHENSIVE HARDWARE PACKAGE?

The ideal voice hardware package should be made to last and capable of being seamlessly integrated into the working environment. The software and hardware should be in perfect harmony and provide optimum support for hands-free, eyes-free concepts. Some suppliers only offer hardware from third parties, while others have their own voice-hardware, whilst some suppliers even offer both options for increased flexibility.

DOES THE SUPPLIER HAVE A GLOBAL FOOTING?

If the company operates globally or is at least planning an international expansion, then the solution should be suitable for a global roll-out and not feature any restrictions in this regard. There should also be a global support service, ideally available 24/7.

IS THE SYSTEM AVAILABLE IN THE REQUIRED LANGUAGES?

When it comes to hiring seasonal workers, it is important that the system covers multiple languages to ensure that these employees can work effectively. This also keeps the onboarding time for new colleagues to a minimum.

DOES THE SOLUTION FULFIL ALL DATA PROTECTION REQUIREMENTS?

In the consumer sector, some people think that voice solutions are "listening in" on users. In the B2B market, voice solutions should fulfil all data protection requirements without exception in accordance with the GDPR.

IS THERE A FLEXIBLE LICENSING MODEL?

A flexible licensing model helps to cut down on costs, as you only pay for what you actually use. If you've bought 150 devices, for example, but only actively use 100 licences, then you only pay for those 100 licences. Make sure to inquire about a dynamic licensing model. It really pays off.

IS THE SYSTEM BASED ON THE LATEST OPERATING SYSTEMS?

Ever since Windows CE discontinued its support service, there has been increasing demand for Android devices that meet industry standards. Suppliers should ideally have state-of-the-art Android devices and offer Android Enterprise without consumer services.

IS THERE A SUPPORT AND MAINTENANCE MODEL?

Once you've started using your voice system, you still need a reliable partner on your side to give you that long-term reassurance that if devices malfunction, they can be quickly replaced. They should also cover any maintenance work or necessary software updates.

DOES THE SUPPLIER SPECIALISE IN VOICE SOLUTIONS?

Your supplier should specialise in voice solutions. This is the only way to guarantee the highest quality of the system is reached and ensure that the advice you receive is tailored to your company. Ideally, the supplier should have many years of expertise and be able to demonstrate this on the basis of numerous client projects.

CAN THE SOLUTION BE EASILY INTEGRATED INTO YOUR SYSTEM LANDSCAPE?

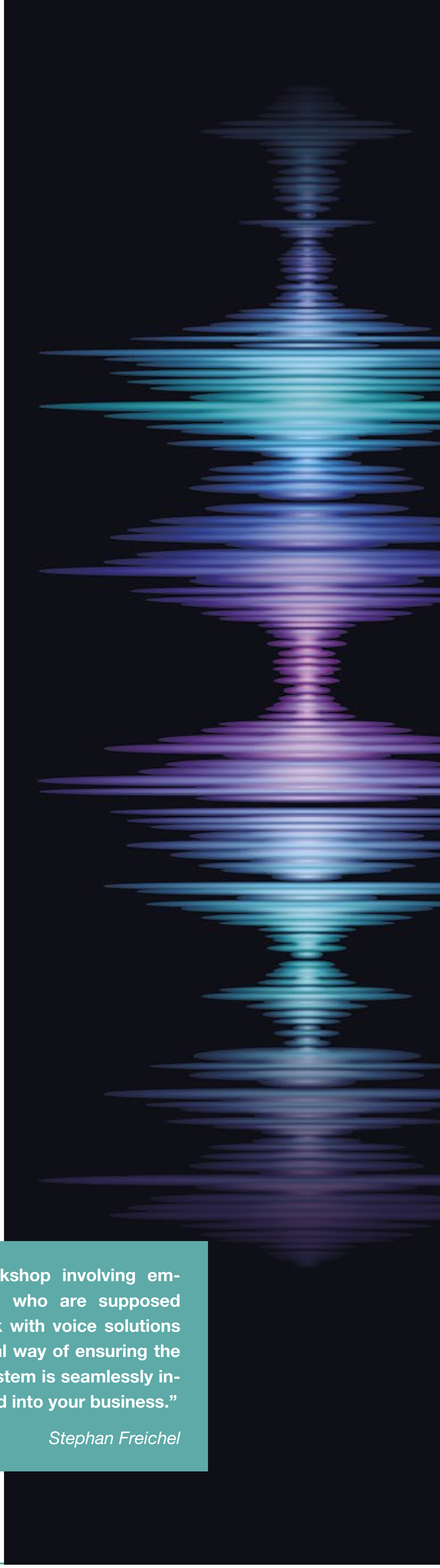
The supplier must use standard interfaces or be in a position to integrate the voice solution directly into the overarching system. Ideally, you shouldn't have to change your existing IT landscape.

IS IT POSSIBLE TO MAKE ADJUSTMENTS TO THE SYSTEM?

Another important question in this context would be whether you, the customer, can make adjustments to the system yourself should you wish to do so.

PLAYING IT SAFE

AVOID POTENTIAL PITFALLS



CONSUMER VOICE SOLUTIONS IN THE WAREHOUSE

For those thinking that Alexa, Siri & Co. are much cheaper than an industrial voice solution – and will thus help to save money right from the outset – we're going to have to disappoint you. What might work well in a smart home does not necessarily translate to the logistics sector. For one thing, voice recognition takes place in the cloud for consumer devices. Industrial voice applications, in contrast, make direct use of a voice client. They are therefore much quicker. In addition, the requirements expected with a consumer voice solution are fundamentally different. When it comes to private use, receiving a quick response is not all that important. Things are different in the warehouse, however, where every millisecond counts. In large logistics facilities, there are often several thousand users working simultaneously with a voice system. This means that voice recognition in the warehouse must always be at a much higher level and the conditions in the warehouse are completely different. What's more, systems like Alexa require a permanent internet connection whereas modern voice solutions can also work in offline mode. For all these reasons, the principle of the smart home voice assistance can simply not be applied in the same way to a logistics environment, as it was designed for a different area of application.

LACK OF CHANGE MANAGEMENT WITHIN COMPANIES

Communication is key to the successful introduction of a voice solution. Particularly when it comes to using new order picking hardware, for example, it is important to get employees on board as soon as possible. The shift from paper lists to working with voice-supported portable data terminals requires a degree of sensitivity and a settling-in phase. Not all employees are immediately enthusiastic about the transition, even if voice solutions make their work easier and much more ergonomic. But arguments such as greatly improved ergonomics, the wide range of hardware components to choose

"A workshop involving employees who are supposed to work with voice solutions is a vital way of ensuring the new system is seamlessly integrated into your business."

Stephan Freichel

from, and intuitive voice operation will help to convince them. The possibility of replacing equipment and thus maintaining hygiene standards when using hardware – e.g. replacing headphones or microphone pads – are further arguments that logistics managers can make. Holding a joint workshop involving employees is often the best way to ensure effective change management within companies. Existing processes and procedures can also be analysed during such workshops. Furthermore, in addition to clarifying any technical questions, voice-supported processes can also be restructured. After the workshop, processes can be outlined, interfaces defined and suitable hardware identified. This helps to determine the exact scope of the project, which enables the supplier to prepare a binding quote. The major advantage here is that clients are given the parameters they need to plan project budgets and schedules. In addition, a clear training concept should be drawn up after the workshop to ensure that employees are brought up to speed as soon as possible.

MAKE SURE TO TEST THE SYSTEM

Never opt for a voice system on the basis of how it should work in theory. Suppliers should always offer clients the opportunity to try out the product for themselves. Realistic warehouse environments with installation testing are best-suited for such trial runs. This will help to give you an immediate feel for the new system and will make any further decisions – e.g. relating to hardware – much easier.

DON'T CHOOSE THE WRONG HARDWARE

Voice solution suppliers should be on hand to advise you right from the start, which includes choosing the right hardware for your needs. Depending on the industry your company is active in and the processes within your business, certain devices will be more suitable than others. This is something that can be identified during a joint workshop. Your employees should also be involved in the decision-making process, as they are ultimately the ones who will be working with the products. Some employees prefer headsets and belt-worn mobile voice computers, while others prefer an order picking vest. The market now offers solutions that cater to all requirements. Furthermore, suppliers should be highly flexible, allowing you to change your hardware as and when required.

A GLIMPSE INTO THE FUTURE

WHERE ARE WE HEADING?

The COVID-19 pandemic has triggered a real boost in the development of voice solutions in certain areas. For example, the use of voice technology just for in-store picking is becoming increasingly relevant, as customers look to avoid trips to the supermarket. Instead, orders are directly compiled for customers in store either for collection or delivery. In addition, the click-and-collect trend is rapidly accelerating the development of in-store picking. Voice solutions are one of the few technologies that support these processes. In addition to in-store picking, voice solutions have started to become established in other areas of application outside of the warehouse. These include, for example, the receipt of goods in stores, replenishment control in the storage racks, and inventory management.

The technological potential of voice solutions in the logistics sector is far from being fully exploited. Alongside the use of deep neural network technology, applications based on the use of artificial intelligence (AI) components are conceivable. The voice system would thus be capable of learning and only respond to the speaker it has been assigned to. When work begins, the solution would then automatically adopt personalised system settings. AI also offers a great deal of potential in terms of data evaluation and reporting. The evaluation of data is ultimately essential for ensuring the voice installation as a whole delivers consistently high performance. With the aid of AI, for example, company-specific thresholds can be monitored more effectively.

SUMMARY

SUPPLIERS UNDER THE MICROSCOPE

Those who opt to invest in a voice system strive for long-term success in working with the product. It is therefore important to take a close look at the suppliers on the market, and not just for cost reasons – the devil is ultimately in the detail. However, companies that see what's available ahead of time and consider a number of aspects will achieve quick results. It's important to get your employees involved in choosing a solution and to hammer out the details together with your supplier during a workshop. The issue of flexibility plays a huge role throughout the entire process. It's an essential aspect to consider when choosing a voice solution. Because ultimately, the success of a business is dependent on the functionality, agility and resilience of the technologies it uses.