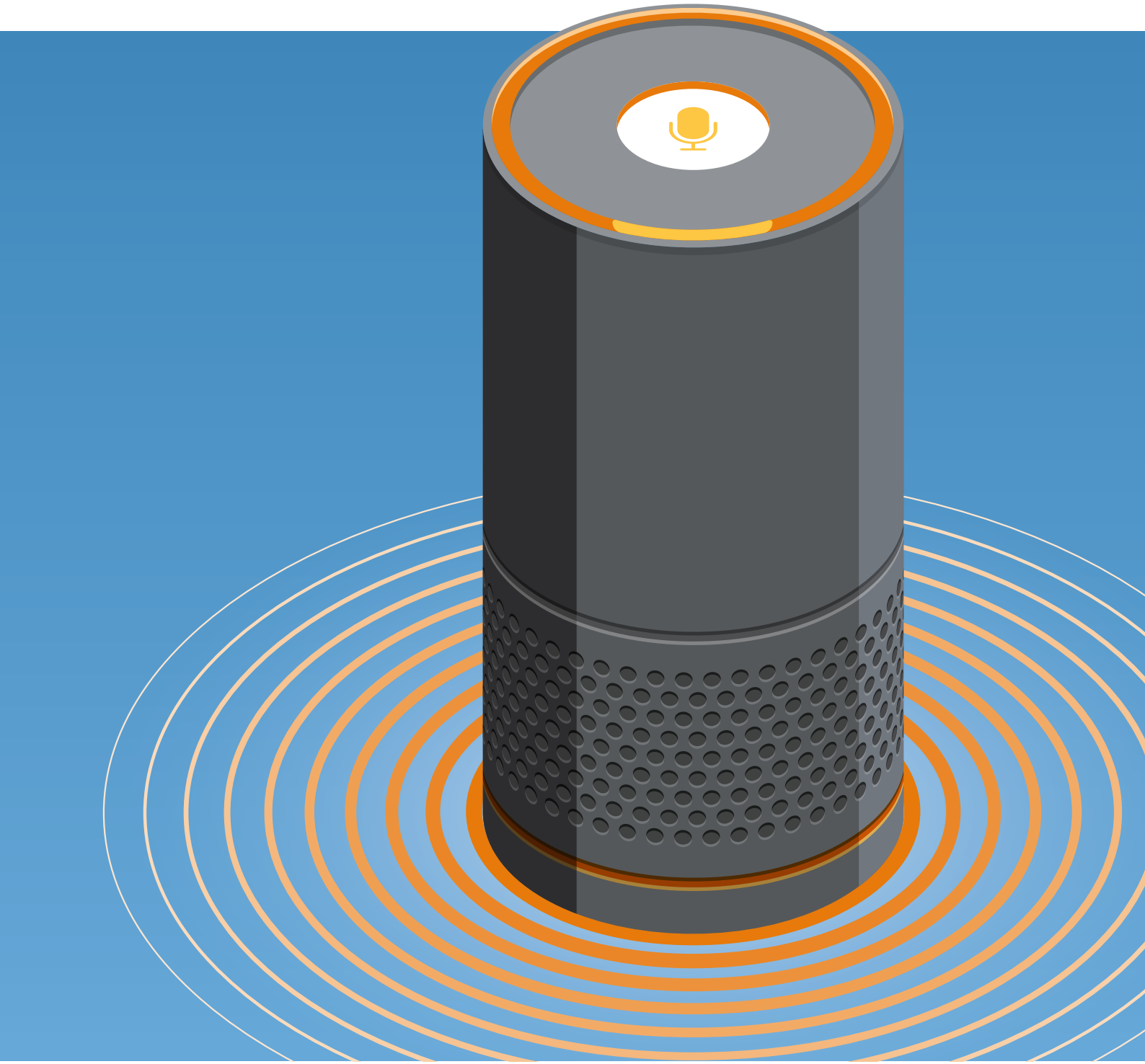
INDUSTRY INSIDERS

The Rise of Voice Technology



Technology Workforce Solutions

Experis®
ManpowerGroup

About Experis and Industry Insiders

In today's world of work, companies must plan for unpredictability and need to be built for change. With technological disruption and geopolitical uncertainty continuing at pace, we can be certain that further change lies ahead. Companies need to adapt, so they can keep the business running smoothly with one hand, while preparing for a different and uncertain future with the other.

Industry Insiders delves into the latest trends that are forcing employers to think differently about their business and workforce strategies. By combining the latest market intelligence with Experis insights and expertise, we explore the new opportunities that business leaders can harness in order to secure the future success of their organisation, and the challenges that must be addressed along the way.

Experis is the largest IT recruitment specialist in Europe, and leaders in professional Finance and Engineering workforce management. We have been at the forefront of the search for the best in professional talent for over 25 years, placing tens of thousands of individuals into roles across the UK. From contract and permanent recruitment, to managed services and consulting – we deliver the recruitment and workforce solutions that help companies seize opportunities.

We go further to find top talent that's often hidden beneath the surface. We tap our industry-leading network and extensive workforce management experience to match premier professionals to your precise business needs. All this, to lead your company to the top.

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FOREWORD

As digitisation takes hold and organisations look to invest in new technologies to secure their future success, we can expect to see the workforce transformed the world over. But despite some doom and gloom news stories, most employers think automation will create a net gain for employment in the near-term. Only 10% of organisations anticipate that they will have to reduce their workforce as a result of automation.

Since industries are shifting to more advanced, automated processes, roles that are routine or add less value to customers are under greatest threat of automation. But we can expect to see significant growth in the IT departments that drive digital transformation.

Today, many businesses are focusing their digital transformation efforts on voice technology. In years gone by, customers were perfectly happy interacting with an organisation through a keyboard and a mouse. With the arrival of the smartphone, touchscreens became the new norm, and consumers quickly expected to be able to interact with technology without the need for peripheral devices. Now, expectations are shifting again, through the growth of voice technology.

TECHNOLOGY CAN SURPASS HUMAN COGNITION

Replicating human cognition in new technologies has been the goal for over half a century. We are not quite there yet, but recent advances in machine learning have highlighted how new technology can surpass human cognition, particularly when it comes to inferring insight from large datasets. Balancing the new cognitive powers of technology with the human strengths of employees will drive future business growth.

To harness the opportunities that voice technology presents, organisations will need new skills. Existing workers will need to be reskilled and trained in voice technology development; while new workers who already possess these skills will need to be engaged – either as a permanent employee, or as a contractor who's there to upskill the rest of the team.

What's more, voice technology cannot be developed in isolation. It will never be as effective if it is bolted on to the IT strategy as an afterthought, since the integration with other systems simply won't be seamless enough. All elements of the digital strategy will need to be reconsidered, meaning voice technology is likely to impact all corners of your IT department and wider business.

THE FUTURE OF TECH WORKFORCES

In our new Industry Insiders report, we delve into the world of voice technology, to explore the impact that this emerging technology will have on the future of tech professionals and IT departments. We examine the key skills that are most in-demand; and we recommend ways in which your organisation can prepare your workforce for this new trend.

As always, I do hope you find this to be a useful tool as you futureproof your IT workforce in the face of emerging technologies. If you would like to discuss your own experiences in sourcing talent, please feel free to reach out to myself or one of the Experis team.

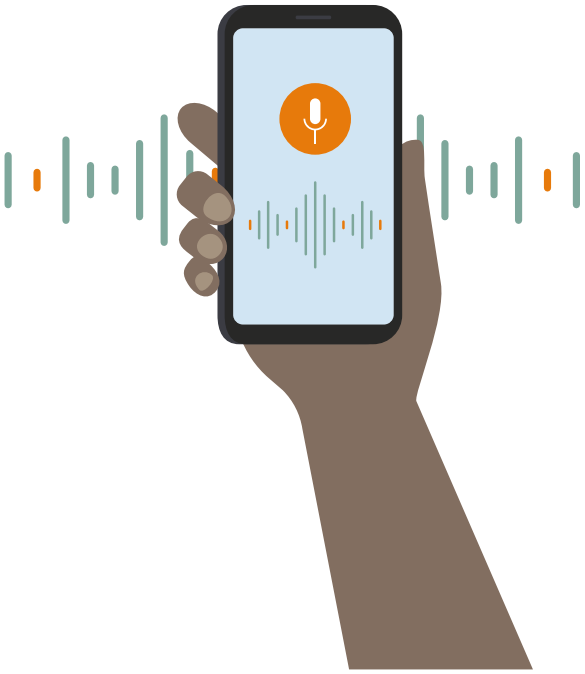
Best wishes,
Martin Ewings

TECHNOLOGY PERSPECTIVE

FINDING YOUR VOICE

Most of us will be very familiar with the voice assistants that many large tech companies have launched over the last few years – including Alexa, Siri, Google Voice and more. These are helping consumers to multi-task in a way that has never previously been possible. We can find out tomorrow's weather forecast while washing the car; we can order extra grocery items while cooking dinner; and while we're driving home from the office, we can set ourselves a reminder on a task we need to carry out first thing in the morning.

What's more, throughout all of this, voice technology enables us to have a more engaging, personal experience than the text-driven technology experiences we have used in the past. With the right tone, pitch and language, voice technology can communicate a uniquely positive perception of an organisation's brand.



While voice assistants have been around in the consumer world for a while, progress in the corporate world has been limited to distinct functions, such as chatbots in call centres. But enterprise adoption is set to become mainstream in the next 18 – 24 months.

THE CHALLENGE OF DEVELOPMENT

Natural language processing is at the heart of all of this. It is the means by which technology and humans can interact with one another through voice. Since consumers increasingly expect voice-first interactions with technology, more and more organisations are investing in natural language processing and generation. In fact, a survey by Deloitte found that it is the third most commonly deployed form of AI within organisations – robotic process automation is first on 59%, and statistical machine learning is second on 54%.

Nonetheless, developing voice technology is still a challenge, particularly from a business-use perspective. While many digital assistants can meet the day-to-day needs of consumers, there is still a long way to go before they will be able to undertake many of the activities that organisations would require of them.

Furthermore, as organisations get more complicated, so too must the technologies that are employed to deal with them. While significant progress has been made in developing voice technology over the last few years, there is still a long way to go and it is still playing catch up to the rest of the technology market. So much so, that Deloitte also found that 40% of the companies who are using natural language processing consider the technology to be immature.

AVOIDING COGNITIVE FRICTION

Voice technology has the capacity to make or break a brand. Adopt it too early, and it will frustrate your customers and employees. Adopt it too late, and you will lose market share as the market pursues brands that are easier to engage with.

This is not an emerging trend that will affect one small part of the business. It will increasingly impact every element of the business where people are involved – both in terms of how your organisation operates, and how your products and service are delivered to your customers.

In the future, intelligent assistants will support staff in everything from meeting and email management, through to proactive customer service and predictive analytics. However, if workers find the voice technology that they interact with to be limited or unfit for purpose, they will experience cognitive friction and, as a result, lost productivity.

It will be those organisations that integrate and blend the capabilities of their people with emerging cognitive technologies who will be most successful in the future. Voice technology has a role to play in every aspect of an organisation's value creation. But, to get this right, businesses are dependent on accessing the right talent to implement it effectively.

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TALENT PERSPECTIVE

THE TIME TO PLAN IS NOW

Moving from laptops to smartphones was a step change in how we engaged with technology, and voice will soon give rise to a further evolution. We need to be prepared for this from a talent perspective; particularly in respect of how we integrate voice technology to optimise the productivity of our people and improve the customer experience. Of course, this will only be achievable if organisations can gain access to the small pool of skilled voice technology talent.

Voice technology has the power to deliver large operational gains, improve customer and employee experiences and create new business models. Perhaps most importantly, voice technology provides a hands-free way of accessing information. Think fireman in a burning building; surgeon mid-operation; or customer needing real-time diagnostic support in respect of a product issue. This is not new. To harness these opportunities, organisations must start planning now, particularly from a talent perspective.

TACTICAL TALENT APPROACHES

We can easily compare voice technology today to the old PC MS DOS operating system. Essentially, it is a command line interface, rather than a conversational one. As a result, it struggles to differentiate between different voices. It doesn't work well in noisy office environments, and it doesn't cope well with ambiguity or irony either. There is a long way to go until it can completely simulate human intelligence, but it is getting there fast and we need to be prepared for it.

It is clear that voice technology is complex. So when developing it, it is often better to harness the work of specialists such as Google, rather than reinvent the wheel. However, using the development kits associated with the likes of Amazon, Google and Apple may expose your organisation from a privacy perspective. This is an important consideration, particularly in today's post-GDPR world. Instead, some organisations might find that Mycroft – an emerging open source voice development toolkit – could be a less sensitive option.

> Since voice technology is such a fast-evolving area, it is very difficult to formalise the education needed to produce the next generation of specialists

As consumer and business expectations change, organisations that do not have access to voice technology skills will be at a competitive disadvantage. But there are simply not enough people. According to analysis by Indeed, there are at least twice as many jobs in artificial intelligence

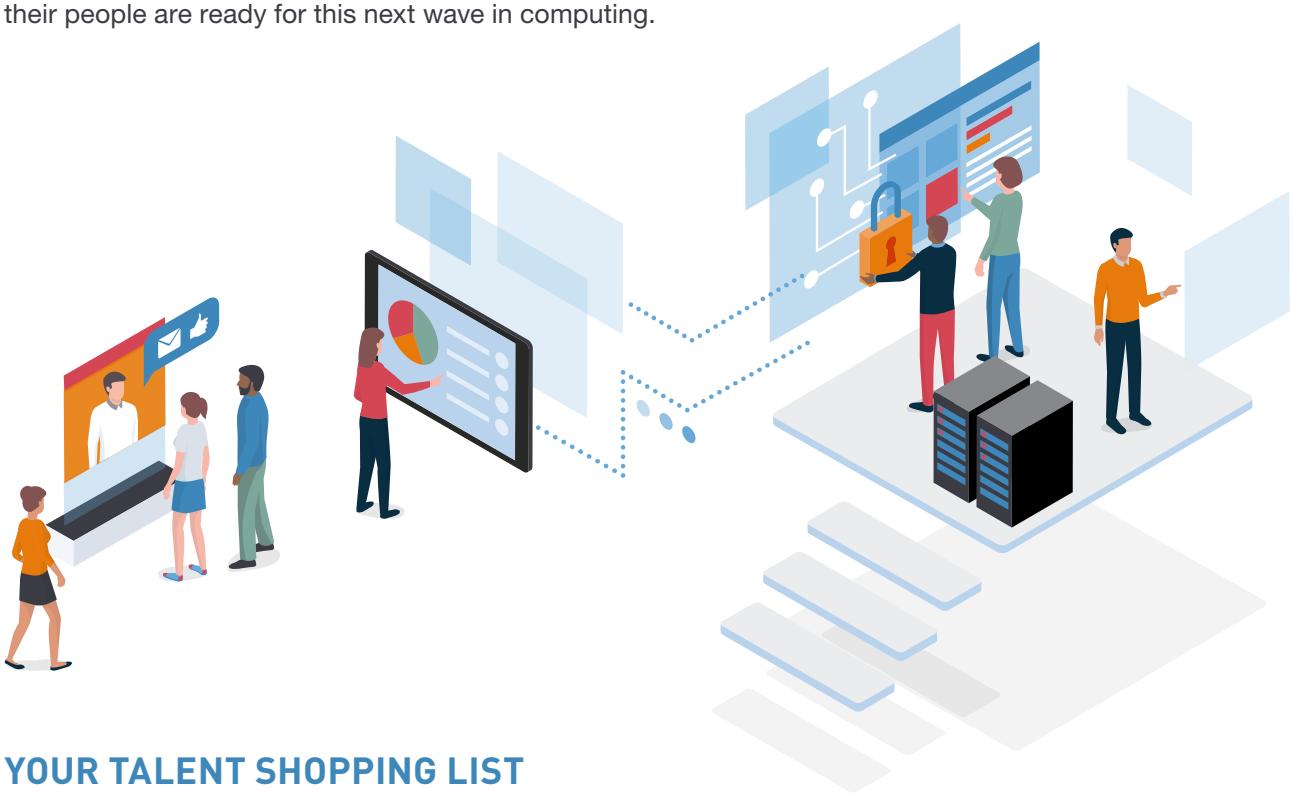
as there are suitable applicants. They report that the number of UK-based roles in artificial intelligence has risen by 485% since 2014, but there is not enough appropriately skilled candidates to meet this demand.

Furthermore, since voice technology is such a fast-evolving area, it is very difficult to formalise the education needed to produce the next generation of specialists. Instead, a more tactical approach is required to upskill and reskill tech professionals in voice-specific roles.

ACQUIRING VOICE SKILLS

Organisations need experts that extend beyond software developers, to business analysts and enterprise architects. Voice must dovetail into your cloud strategy, your security architecture, your data model, and more – these challenges will require the expertise of a broad range of experts, beyond your development team. It is better to do this now, rather than having to reverse engineer your architecture, based on the voice products that have been purchased in silos across the organisation.

From the perspective of the technology specialist, it is important to think about how they are going to acquire voice technology skills, particularly if the systems they develop or maintain have a human interface. This requires the support of employers, to work with the IT function to develop a programme that ensures their people are ready for this next wave in computing.



YOUR TALENT SHOPPING LIST

Voice technology is much more than just another skillset to add to your technology talent shopping list. It has infrastructural implications for your business. Not only will your IT departments need to quickly acquire new skill sets, but it also has the potential to transform jobs elsewhere in your organisation – particularly those in call centres. With this in mind, it is important that it is introduced carefully and sensitively.

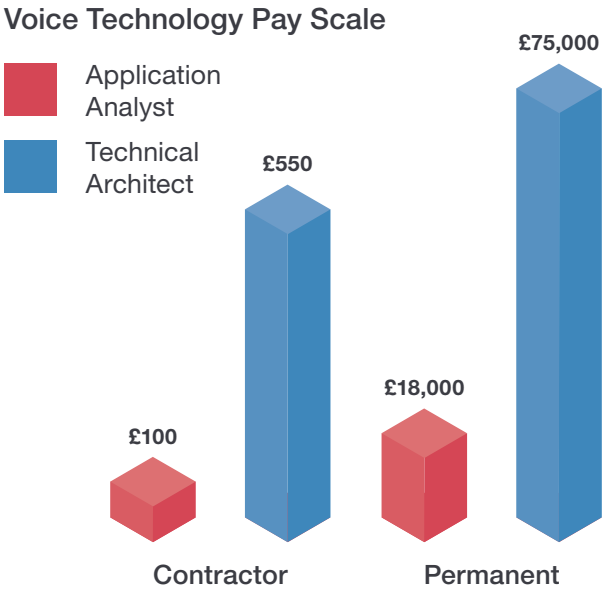
This is a potential game changer. It impacts every technology interface, and can transform the experience that your people, your customers and your prospects will have when engaging with your organisation. In many respects, voice technology will lie at the heart of your business transformation.

MAPPING VOICE SKILLS

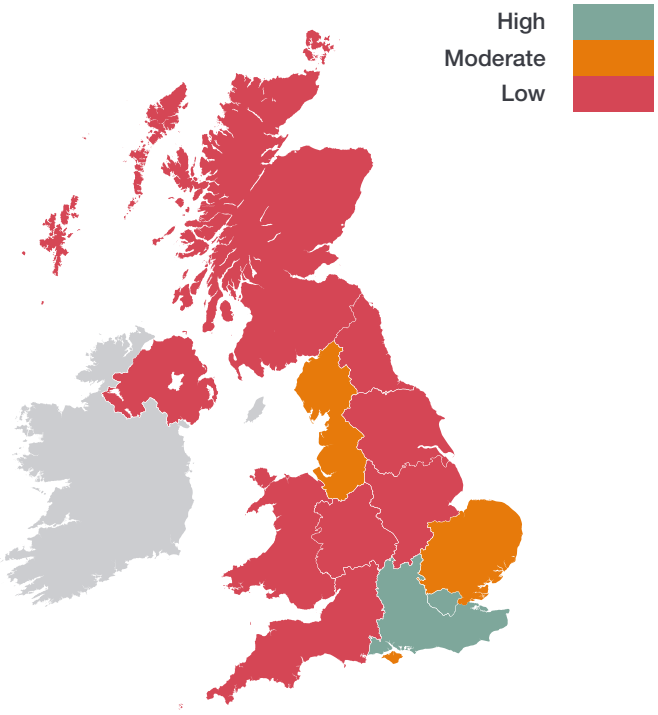
With voice now moving into the 'early majority' phase of its development for the consumer market, and remaining in the early stages of adoption for the B2B market, hiring demand is still relatively low for individuals with skills in voice technology. However, with voice enabled devices becoming increasingly embedded in consumer lifestyles, and the Gen Z age group (born 1996-2012) beginning to enter the workforce, demand is only expected to increase over the coming years.

THE VOICE TECHNOLOGY MARKET

For permanent talent in the voice technology market, average salaries start at £18,000 for more junior roles and increase to £75,000 for some of the more senior roles. In the contractor market, average daily rates range from between £100 and £550 per day depending on experience. At the lower end of the scale, you can find roles such as Application Analysts, essential in helping your organisation to test and scale voice capabilities. At the top end of the permanent voice market are positions like Technical Architects, helping to drive the strategic direction of projects.



AVAILABILITY BY REGION

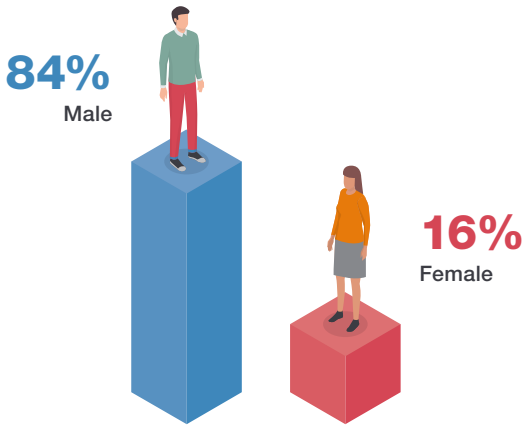


For those organisations looking to find the best talent in voice technology, location is a crucial element of the equation. As you can see from the heat map, the majority of talent is focused in London and the South East of England, with a moderate-sized talent pool also based in the East and North West of England.

For those brands with offices based outside of these areas, ensuring that your offering is competitive with the other organisations competing for this talent is essential. You should look to optimise your Employer Value Proposition and develop targeted attraction campaigns to reach the desired audience and drive applications, in order to maximise your chances of finding the right candidates.

GENDER BREAKDOWN

Reflecting the overall IT space, there is a long way to go to improve the gender diversity amongst voice technology experts, with the field currently made up of 84% males and 16% females. And it is not just the workforce that this lack of diversity will negatively impact. Excluding women from setting the norms and parameters in this new technology also increases the likelihood of bias in the solutions they produce for their users.

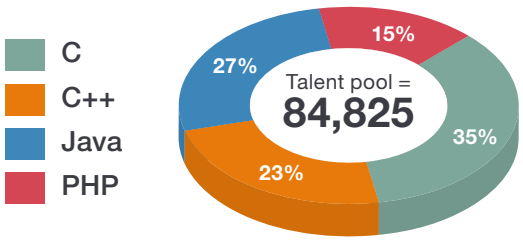


TRANSFERABLE SKILLS

With the voice technology talent pool still in the early stages of development, businesses would be wise to include individuals with related skillsets in their search for talent. This is a particularly helpful approach if you can target skills where demand is declining, and where skillsets are largely transferable.

With voice technology, individuals experienced in the majority of coding languages can be trained in the additional human factors elements required. This can be done while they are on the job, as they already have the core skills required to succeed. Voice and AI also have the added bonus of being 'new and shiny' making it more attractive for those who want to further develop their existing skillsets by working on the latest technology.

Candidate Availability



Top and Average Pay

	C	C++	Java	PHP
Top Salaries	£85k	£87k	£85k	£72k
Country-wide average salaries	£50,000	£52,500	£57,500	£42,500
Contractor Rates	£473	£525	£500	£400

Whilst Python is seen by many as the programming language which will be at the forefront of machine learning, there are a number of languages where demand, whilst still high, is reducing. These include: C, C++, Java and PHP, opening up a much wider potential candidate pool. Those with C and C++ skills are particularly valuable, given the relevancy of their skillsets. And, as you can see from the top and average pay table, the annual and daily rates for these individuals are comparable to those with voice technology experience.

As well as searching for individuals with transferable skills, you should also ensure that successful candidates have high levels of learnability – the ability to continually evolve and adapt their skills – to ensure that they can keep up with the break-neck pace of change expected to occur in this space.

RECOMMENDATIONS

By redesigning your technology, data services and security architectures, organisations can ensure that voice technology doesn't create fault lines within their business. At the same time, it is also important to think through the practicalities of how you will develop this new technology. You could embrace the existing toolkit of one of the tech giants, but there are advantages and disadvantages associated with each of these. What's more, for some organisations, an open source option may be a better route to take.

As well as considering the practicalities of how your organisation will develop and embrace voice technology, it is also important to review how your workforce strategy will need to evolve in order to harness these new opportunities. Here are four aspects of your talent strategy that you need to consider when implementing voice technology:

1 PROVIDE AN ATTRACTIVE ROUTE FOR THE TALENT POOL TO ACQUIRE VOICE SKILLS

There should be few issues getting your users to adopt voice, since the whole idea behind it is to make technology easier to use. The challenge is with growing your technology specialists. In these earlier stages of development and adoption, there will not be enough voice talent to go around, so it is likely that you will have to grow your own. Consider creating a professional development programme to address this.

Solution in Action

TAPPING NEW TALENT TO FILL THE SKILLS GAP

Partnering with a large IT firm in India, we developed Hire-Train-Deploy, an intensive 40-day boot camp to give ambitious but 'not quite qualified' job seekers the skills to succeed. We provided hands-on training for the most sought-after skills – including Oracle, CICS, Informatica, and Blue Prism, to name a few. Last year, Experis enrolled more than 1,500 participants from all over India into the programme, and placed more than 97% of the graduates into roles after completion.

2 DEVELOP YOUR EMPLOYEE BRAND

Letting the world know that you have embraced voice technology will attract a more forward-thinking quality of candidate who is interested in pursuing an AI-related career. At the same time, it is also important to offer training that will enable them to develop the functional skills needed to create tools that will engage different types of users.

Solution in Action

ALIGNING RECRUITMENT STRATEGY WITH CANDIDATE EXPECTATIONS

When recruiting permanent Software Developers, Infrastructure and Cloud Architects, Digital Delivery Managers and more for a public sector organisation, we found that their offering did not align with candidate expectations. Given the scarcity of skills in the market, this limited their ability to progress their digital transformation journey. Drawing on our extensive knowledge of the IT marketplace, we were able to provide accurate and unbiased intelligence into the availability and expectations of the talent they wished to attract, and developed a go-to-market strategy that enabled us to successfully secure the talent needed.

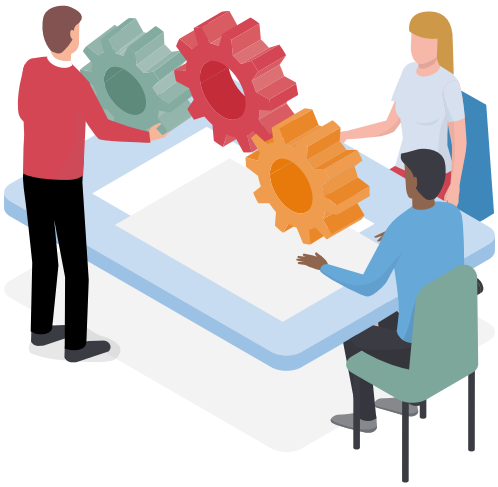
3 CONSIDER THE IMPLICATIONS OF REPLACING STAFF WITH INTELLIGENT ASSISTANTS

Before making such a drastic change to your workforce composition, it is important to consider whether the technology is sufficiently advanced; and whether intelligent assistants will really enhance the customer experience. What's more, if automation is the right step to make, think about ways in which you can redeploy workers who are replaced by software. It's not just the right thing to do – it makes clear business sense.

Solution in Action

UPSKILLING WORKERS FROM DECLINING INDUSTRIES TO HIGH GROWTH SECTORS

As automation changes how work gets done, we must find solutions for workers who are displaced from declining industries. We are proud to be doing exactly that. An example comes from the world's most advanced motorsport manufacturers, who were struggling to find enough skilled workers to fabricate the stronger, lighter-weight components used in their high performance cars. Partnering with local technical schools, universities and government, Experis retrained hundreds of under-employed textile workers to work with high-tech materials like carbon fibre. These individuals are now working in the prestigious, high-performing, automotive industry: a formula that can be scaled elsewhere, too.



4 CONSIDER HOW YOU WILL INTEGRATE THE COGNITIVE CAPACITIES OF YOUR PEOPLE WITH THESE EMERGING TOOLS

The future of business is in augmenting the cognitive capacities of your talent with AI. The companies that get this right will win. You need to assign people to developing future business models, rather than just focusing on your current business. None of us can be certain how long our existing business models have left to run in these disruptive times.

Solution in Action

LEVERAGING THE POWER OF PEOPLE TO DRIVE CHANGE

TomTom's leaders recognised that the digital age requires new mindsets and new ways of working across generations. Their goal was to unleash their people's potential for innovation. To reach this goal, they needed to assess and measure the potential of their leaders and make up of their culture. TomTom partnered with us to assess its leadership and help identify the right talent to lead through their transformation. In six months, TomTom assessed 750 managers in 35 countries, and this investment allowed them to identify the right leaders, helping TomTom successfully complete its digital transformation and drive ROI for the company.

CONCLUSION

It is clear that voice technology will enable organisations to nurture more engaging, personal experiences with their customers than they have achieved in the past. However there are many obstacles that must be overcome, before an organisation can successfully embed it into their wider IT infrastructure.

Gaining access to the right talent pool is critical. Since voice technology remains in its infancy, there are a limited number of specialists to meet demand. This means it is important to consider how individuals from IT specialisms that are experiencing a reduction in hiring demand can be redeployed in this emerging field. What's more, it is also important to remember that voice technology is not a standalone project or initiative. To be effective, it must seamlessly dovetail into every element of your IT strategy, which will require significant training efforts to ensure your IT department at large is prepared for this next wave in computing. As with so many elements of the technological revolution, your talent strategy needs to be at the heart of your IT strategy.

Contact Us Today

At Experis, we help organisations to find, assess, engage and manage the specialist skills they need to drive organisational growth and innovation. As industry forces transform the business landscape, we help businesses to augment their workforce so they have the talent they need to seize opportunities and capture competitive advantage.

If you would like to discuss how Experis can help your organisation to align your workforce strategy with your IT strategy, feel free to contact us today:

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Special thanks to Ade McCormack for his contribution to this report. Ade McCormack is a digital strategist and near futurist. He is a former technologist, FT opinion columnist, and CIO 100 judge, and has lectured at MIT Sloan on digital leadership. More of his strategic insights can be found via his blogs at www.ademccormack.com.


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