

The life sciences industry has been at the forefront of innovation for many years, driving advancement in human life, society, and the natural world. From groundbreaking research, enhanced diagnostics to the development of life-saving treatments, the intersection of technology and talent is driving unprecedented advancements in this field.

The COVID-19 pandemic propelled the life science industry into the mainstream as organisations raced to meet the demands of treatments, testing, and vaccines to tackle the pandemic. With the pandemic slowly being assigned to the history books, what does the future of life science look like in the age of increasing digitalisation?

This guide will explore the strategic importance of digital transformation; we'll take a closer look at the cutting-edge technologies revolutionising the sector, the current and future challenges for life sciences businesses, and what strategies organisations can use to hire and retain future talent.



# The Growing Strategic Importance of Digital Transformation

With a global population standing at 7.6 billion in 2023 and approximately 9.4% of people aged 65 or above, the demand for healthcare is reaching unprecedented levels. The emergence of new diseases, propelled by urbanisation and industrialisation, further intensifies the challenges faced by the healthcare sector. With worldwide medication expenditure racing towards USD 1.5 trillion, the life sciences sector will increasingly play a significant role in ensuring research and advancements positively impact worldwide healthcare.

Away from healthcare, the life sciences industry plays a vital role in limiting the potential impacts of a changing climate on Earth and devising strategies to mitigate the adverse effects of climate change. This involves harnessing living systems to decrease emissions, extract greenhouse gases from the atmosphere, and assist crops, animals, ecosystems, and communities in adapting to the challenges of a warming world.

To ensure the industry becomes future-proof and can continue this vital work, life sciences businesses and leaders must embrace a digital-focused mindset to ensure their future success.

Life science companies are increasingly turning to digitalisation to reduce human error in various processes, such as data interpretation and input in clinical trials. This shift is driven by the recognition that human errors can be costly and time-consuming to rectify, particularly in the life science industry's highly regulated and complex environment.

Furthermore, a <u>2022 survey</u> revealed that over a third of quality professionals in the life sciences sector still rely entirely on paper and spreadsheets. Beyond being a risk to patients, this reliance squanders time and effort, multiplying compliance burdens for highly regulated companies.

The COVID-19 pandemic was a wake-up call for digital transformation and highlighted the need for change. Remote audits, decentralised clinical trials, and the concept of 'collaboration from a distance' forced life science organisations to envision a connected, accelerated, and digitalised future. To kick-start the digital transformation journey, businesses should make the following a key part of their strategic roadmap:



### **Identify Crucial Processes**

The goal is pinpointing the core processes where digital transformation promises the most significant impact. Whether enhancing quality and product development, streamlining sales and marketing efforts, or ensuring regulatory compliance, identifying these crucial processes is the foundation of a successful digital transformation strategy.



#### **Build a Digital Transformation A-Team**

Successful digital transformation requires internal coordination and a dedicated team equipped with the skills and knowledge to navigate the complexities of digital projects. This team drives your initiatives, ensuring that diverse perspectives are considered and integrated into the strategy.



### **Understand the Purpose of Digital Transformation**

Define the overarching objectives of your digital transformation, ensuring they align seamlessly with broader business goals. Whether streamlining internal processes, enhancing customer experiences, or staying compliant with evolving regulations, each digital transformation initiative should have specific, measurable goals.

Embracing digital transformation within the life sciences industry brings numerous benefits, including improved collaboration and communication, expedited research and development, and the capacity to adapt quickly to the ever-changing healthcare environment. Furthermore, it enables companies to harness advancements such as artificial intelligence, data analytics, and blockchain to streamline operations, elevate patient outcomes, and expedite the process of drug discovery and development. This change is not just a technological upgrade; it has

become a strategic imperative for the life science industry. As the volume and nature of data evolve, industry leaders must prioritise accuracy, formatting, and data structure in a digitalised world. With a focus on supply chain, quality, and research and development, digital transformation is not just an option; it is the gateway to a future where life-saving products reach markets faster and more efficiently.



The ongoing digital transformation that life science is experiencing has laid the foundation for developing the most cutting-edge technologies. These crucial technologies will revolutionise the sector and ensure innovation continues to thrive.

Here are the most significant technologies impacting the life science industry.



### Artificial Intelligence

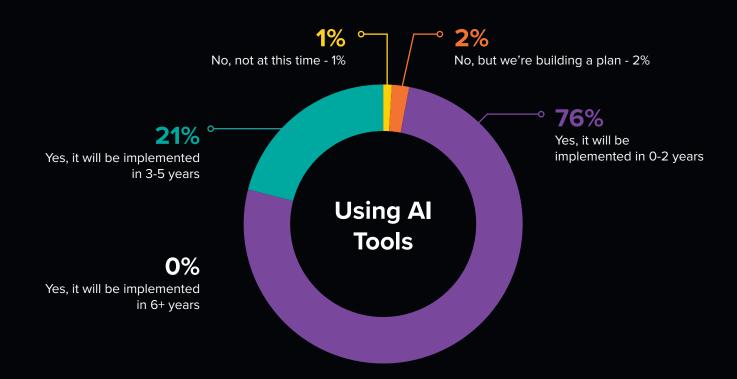
Artificial intelligence is making daily headlines worldwide; however, it is not merely a buzzword but a transformative force capable of completely reshaping the life science sector. Its unparalleled ability to swiftly and accurately analyse large datasets positions it as an ideal tool for various applications used in the industry. From expediting drug design and development to managing clinical trials, population health management, and diagnostics, Al-driven technologies are becoming indispensable for global life science businesses.

Recognising the urgency of consolidating quality data, life sciences organisations are abandoning outdated IT systems, data silos, and manual workarounds, with 87% of C-suite executives having expressed their intent to invest in digital innovation in the coming year.

For instance, adopting cloud-based, electronic Quality Management Systems (eQMS) is a significant stride, allowing manufacturers to consolidate quality operations

and information within a single, scalable platform. Automated workflows embedded within this digital ecosystem eliminate manual tasks, enhancing operational efficiency and accuracy. As highlighted in EisnerAmper's 2023 trends report, the efficiencies promised by cloud computing allow the life sciences industry to redirect its focus to its true mission - cultivating cures and treatments in shorter time frames.

Al will continue to be the most significant trend to watch as we move into 2024, not just in sciences but industries worldwide. Integrating Al, machine learning, IoT integration, and big data analytics within Quality Management Systems (QMS) enables manufacturers to extract actionable insights from vast volumes of quality data. In a survey by CRB, when life science businesses were asked, 'Does your company have a strategy to use Al tools?' the results revealed how Al is certainly in the minds of these businesses when planning their future:



The impacts of AI extend beyond operational efficiency, contributing to improved patient outcomes by providing healthcare professionals with nuanced insights into the treatments they administer. In a world where the future is now, life sciences manufacturers are recognising the importance of embracing AI to remain at the forefront of drug and device development on a global scale.

### Real-World Data

Real-world data (RWD) emerges as a goldmine of insights into real-life patient behaviour and healthcare trends, offering a comprehensive view beyond the controlled environments of clinical settings. As the life science industry increasingly recognises the value of RWD, integrating Al and machine learning becomes instrumental in deriving actionable insights from this vast and diverse dataset.

Collected from patients in their daily lives, RWD provides a deeper understanding of how drugs impact patient outcomes, offering invaluable insights into long-term effectiveness and safety. The potential applications of RWD are vast and varied, ranging from informing clinical decision-making to optimising drug development strategies. The ability of RWD to highlight unmet patient needs and areas for innovation positions it as a pivotal component in shaping the future of the life science industry.

Various sources contribute to the generation of RWD, including electronic health records, patient-generated data, product and disease registries, social media, and scientific literature. As companies continue to prioritise and expand their usage of RWD in the future, the need for meticulous data management becomes vital.

Building a foundation for AI methodologies, businesses must ensure robust data infrastructure, emphasising storage, management, and governance systems capable of handling the complexities of large and diverse datasets used in AI applications. Moreover, the emphasis on clean, well-structured, and well-annotated data becomes integral in training and validating AI models, laying the groundwork for AI-enabled processes and automation.

### Cloud Technology

The adoption of cloud computing in life sciences is on the rise, marking a seismic shift in how organisations manage, process, and leverage data. From securely storing vast datasets to automating critical processes and providing seamless access to applications across diverse devices, cloud technology is proving to be revolutionary for the industry.

The inherent flexibility and scalability of cloud-based solutions empower life science organisations to adapt swiftly to a sector where businesses need to constantly evolve to stay ahead of the curve. In addition, the cost

savings associated with cloud adoption drive businesses to explore the many benefits these technologies offer.

Cloud automation is emerging as a crucial tool, accelerating the pace of tasks while minimising errors, improving data management, supporting scalability, and providing data security and compliance. Beyond mere efficiency gains, cloud systems are proving instrumental in supporting crucial functions such as clinical trials, regulatory compliance, clinical safety workflow, analytics deployment, and the elevation of medical insights.

### Lab Automation

Laboratory automation entails integrating automated technologies into the lab environment to facilitate enhanced processes. This integration encompasses the utilisation of robots, conveyor systems, machine vision, and computer hardware and software to streamline different facets of experiments, data collection, and data analysis.

Tasks like library preparation, liquid handling, and specimen movement, which are traditionally repetitive, can be automated, and entire laboratory processes or workflows can also be subjected to automation.

The primary objectives of lab automation include achieving cost efficiencies, increasing throughput, improving testing efficiency, ensuring a safer environment, and minimising experimental errors.

With the global laboratory automation market predicted to rise from around \$4.5 billion in 2022 to around \$7.1 billion by 2030, it will continue to significantly influence the future of Life Science.

# **The Vital Challenges**

# **Facing Life Science**

## **Businesses**

With the rise of digital transformation and the technological advancements we have discussed earlier in the guide, life science industries are undergoing a seismic shift in the types of skills demanded from their workforces, ushering in a new era of complexity for talent acquisition leaders. The traditional roles in research and regulatory affairs remain crucial, but the digital transformation sweeping these sectors is compelling organisations to seek professionals with more technical skills.

According to Randstad Sourceright's 2022 In-Demand Skills research, professionals with expertise in AI, machine

learning, big data, cloud computing, and cyber security are in high demand. This shift signifies a move towards a more technology-centric approach, creating a demand for individuals with a more tech-savvy mindset.

This competition for top talent isn't confined to the life science sector. With digital transformation permeating all industries, there's a heightened demand for tech talent across the board. Therefore, there are opportunities for life science companies to attract digital talent away from other sectors, particularly those experiencing workforce reductions, such as tech.

### Retaining Talent Amid Life Science Skills Shortages

Despite the life science industry having a long history of playing a vital role in advancing healthcare, research, and our daily lives, it has been since the COVID-19 pandemic that the sector has been thrown into the mainstream and experienced remarkable growth.

Key businesses such as Pfizer and Johnson and Johnson became household names in the pandemic and were tasked with producing vaccines and treatment under immense pressure and a short timeframe. Furthermore, during the pandemic, genomic sequencing gained widespread attention due to its role in identifying new variants of the virus. Illumina, one of the largest sequencing companies globally, played a crucial role by providing the sequencing system used for the initial sequencing of COVID-19. This data was then integrated into the Global Initiative on Sharing Avian Influenza Data (GISAID) database, enabling real-time public health surveillance and making the information publicly accessible.

This growth has been particularly notable in the U.S., where the life sciences field is expanding significantly faster than other occupations in the economy.

With exceptional growth and the importance of the industry, highly skilled professionals are needed to continue to drive the sector's innovation and success. 71% of Life Science companies are planning to expand their workforces in the coming years, with more than a third of them by greater than 15%. At the same time, the sector also has a projected voluntary turnover rate of 18.4%, higher than the global average of 16.4%. Meaghan Piscitelli, Partner and Global Life Sciences Leader for Aon, commented:

"It's an interesting predicament companies face — people are leaving in large numbers, yet the sector is growing faster than ever before."

The turnover findings accompany a trend that was brought into the headlines during and following the pandemic, 'The Great Resignation,' where swathes of workers across multiple industries left to pursue different careers. The reasons for leaving vary in the life science industry; common reasons include - the rich IPO market, accelerated digitisation, feelings of disconnection caused by virtual working environments, changing demands, and shifting values due to generational differences.

However, despite a surge in graduates with expertise in life sciences, as evidenced by a 79% increase in

researchers between 2001 and 2021, organisations in this industry still face the formidable task of finding suitable talent. In April 2022, the life sciences sector boasted the second-lowest unemployment rate among all U.S. industries, highlighting the intense competition for skilled professionals.

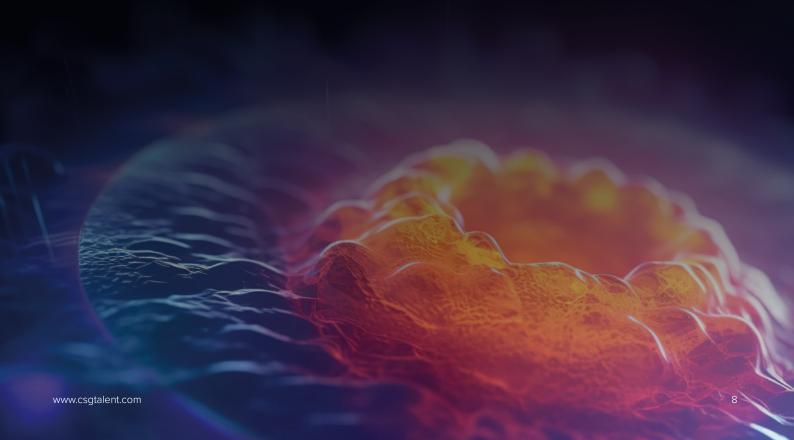
Moreover, the life sciences industry stands out for employing a higher percentage of high-skilled workers compared to other sectors. However, this distinction comes with its own set of challenges, as turnover rates within life sciences organisations are notably high.

### Lack of Diversity is Still Holding Back the Sector

The life science industry is grappling with a significant diversity gap across many of its specialisms, from research to clinical work. Current statistics reveal a stark reality: 65% of the U.S. life science workforce is white, with only 6% being Black, 8% Hispanic, and 19% Asian, according to the U.S. National Science Foundation. To truly reflect the richness of the U.S. population, there's a clear need to more than double the representation of minority ethnic groups in science fields.

In this era of technological disruption, the life science sector is undergoing a transformative wave, amplifying the urgency to address the existing skills gap. Investing in building diverse and inclusive teams is not just a moral imperative but a strategic necessity for future-focused employers. By embracing underrepresented groups, organisations gain a wealth of perspectives and skills that drive innovation and competitiveness.

Moreover, the call for diversity extends to leadership. A striking 85% of life science employees identifying as minorities express feeling 'hugely underrepresented' in senior roles. This underrepresentation not only jeopardises retention but also hampers the attraction of top talent. It's a critical issue that can impact the bottom line and impede the acquisition of highly sought-after skills like data analytics and computer programming, essential in navigating the industry's evolving landscape. The path forward for life sciences organisations is clear: prioritise diversity and inclusion not only as a social responsibility but as a strategic imperative for sustained growth and success.





With the sector growing faster than ever and its importance to our future, how can life science businesses prevent the exodus of high-performing staff to ensure they have the talent they need to continue to drive innovation, research, and breakthroughs? Here are some key strategies that businesses should adopt.

### Reskilling to Build a Tech-Savvy Workforce

As technology continues to advance, skills gaps are becoming more noticeable in the life sciences industry. The sector is witnessing rapid technological changes, with innovations like artificial intelligence (Al), biotechnology, genomics, nanotechnology, and digital health reshaping how research and development (R&D), manufacturing, clinical trials, and patient care are carried out.

However, these advancements require skills and competencies that are currently lacking in the available

talent pool, with some of the most sought-after life science skills including data science, bioinformatics, biostatistics, machine learning (ML), cloud computing, and cybersecurity.

In response to these skills gaps, companies are adopting practical measures, such as investing in the training and development of their existing workforce, hiring from outside the industry, collaborating with academic institutions, and outsourcing certain functions.

'With the increasing influence of new technologies such as Al and Machine Learning, the talent pool of individuals with up-to-date skills and knowledge within the sector simply isn't there. Therefore, we are increasingly supporting businesses to attract talent from other industries who can fill these gaps. Instead of working in tech, for example, we can educate professionals about using their skills in a career in life sciences'

Alex Walker – Vice President, CSG Talent

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### Power of Location

Whether a brand-new start-up or a multinational moving operation, the choice of location is a significant factor in business success. Several factors shape the suitability of a location, from local competition to talent availability to the economic landscape. For example, a primary consideration is the proximity to academia and research. Access to esteemed institutions, such as universities, teaching hospitals, and specialised research centres, is crucial for both talent and fostering innovation.

To highlight the importance of location for life science businesses, the case study below shows the factors of why Greater Philadelphia has become the 2nd best regional hub for Cell and Gene Therapy in the US.

## Greater Philadelphia Case Study

The Greater Philadelphia region has been actively engaged in gene therapy research for over two decades. It achieved a significant milestone in the past ten years by being the birthplace of the first FDA-approved gene (Luxturna®) and cell (Kymriah®) therapies. According to ESI's comparative analysis, the Greater Philadelphia region currently holds the 2nd position among U.S. hubs driving advancements in the cell and gene therapy (CGT) sectors.

### Research Infrastructure

Boasting Tier I universities and renowned research hospitals, Greater Philadelphia consistently secures a minimum of \$1 billion in NIH funding annually. Specifically, the CGT space in the region received an impressive \$317 million in NIH funding since 2018, leading among all regions in the study.



### 1st in NIH FUNDING

CGT projects since 2018

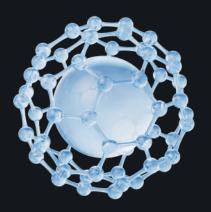
### **Nurturing Talent for CGT** Innovation

With over 4,000 science graduates produced annually, Greater Philadelphia attracts and retains top talent in the CGT sectors. The region's concentration of educational institutions, including four Tier I universities and a total of 93 colleges and universities, fosters an environment conducive to collaboration and innovation.



# Building a Strong Talent Pipeline

The region's 450,000 students contribute to a substantial talent pool, with 54% of alumni choosing to stay local post-graduation. Philadelphia ranks third nationally in medical degree-granting institutions, surpassing even larger cities like New York and Chicago. In both R&D and manufacturing, Greater Philadelphia stands alongside New York and San Francisco, excelling in both categories.



# Aligning Skills with Sector Demand

Approximately,

# 1.2% of recent graduates possess skills crucial to the CGT industry

showcasing Greater Philadelphia's commitment to aligning talent with industry demands.



### **Supporting Industry Suppliers**

Companies providing tools and systems for cell and gene therapy stand to benefit from the growth of this hub. The rising demand from CGT companies in the region for supplies such as gene editing tools, bioprocessing equipment, and specialised laboratory instruments offers opportunities for collaboration and considerable expansion within the region.





### Shift in Mindset on Education

As we have seen in Greater Philadelphia, the life sciences industry highly regards formal education when evaluating potential candidates. However, a significant shift has occurred in response to the evolving market dynamics and the intensifying competition for top talent. Recognising the wealth of STEM skills and knowledge outside the traditional college degree pathway, life sciences executives are increasingly prioritising skills and competencies over formal education.

In this new era, where technology companies have paved the way by not necessitating the requirement for degrees, life sciences executives are strategically reassessing their approach to talent acquisition. The industry is witnessing a departure from the conventional reliance on degrees as executives seek to fill critical skills shortages.

This shift is marked by a broader perspective that values practical skills and hands-on experience as much as, if not

more than, formal education credentials. The emergence of alternative training programs, including in-house apprenticeships, reflects this evolving mindset. A notable 78% of life sciences executives, as revealed by a CSBI poll, indicate active participation in formal partnerships with educational institutions. These partnerships encompass diverse initiatives, ranging from classroom collaborations to scholarship programs.

A standout example is **InnovATEBIO**, a trailblazer supporting biotechnology education in community colleges. The InnovATEBIO National Center for Biotechnology Education is instrumental in nurturing 119 college programs across 38 U.S. states, offering 37 biotechnology-related degrees and certificates. These programs span a spectrum from computational biology and genomics to medical devices and regulatory compliance.

### Increased Focus on the Wellbeing of Employees

The pandemic brought attention to the importance of employee wellbeing—covering emotional, financial, mental, and physical aspects—in shaping overall organisational health. Wellbeing has evolved beyond being just programs and tools; it has become a fundamental people and performance strategy, gradually becoming ingrained in the ethos of global organisations. A notable 82% of organisations worldwide acknowledge the significance of wellbeing as a business essential.

Improvements in wellbeing performance significantly impact customer satisfaction and retention, essential factors for business resilience, continuity, and growth. Recognising this role in customer relationships should be part of strategic business discussions. According to

Aon's Rising Resilient self-assessment tool, life sciences firms exhibit resilience compared to other industries due to a strong sense of purpose, high levels of personal responsibility, and robust workplace collaboration—qualities aligning with the expectations of a future workforce.

Despite this resilience, challenges persist, with prolonged remote work and intensive lab shifts causing stress on life sciences talent. To stay relevant, organisations need to enhance their efforts in financial, mental, and physical well-being programs, whether through clear communication or visible leadership engagement. These considerations will be crucial in shaping their future talent strategy.

# Remote Working is Still a Powerful Recruitment Tool

Along with the rise of life science, the pandemic saw a rise in remote working. The pandemic prompted numerous life sciences companies to implement remote work setups, particularly for employees in non-laboratory roles. While some firms are eager to revert to traditional office settings, others are embracing the advantages of remote work, including cost savings, heightened productivity, better work-life balance, and access to a broader talent pool.

According to Randstad Enterprise, 43% of leaders in the life sciences industry plan to offer remote work options post-pandemic, surpassing the 36% average across all industries. However, adopting remote work in the life sciences sector comes with its own challenges, such as maintaining collaboration, communication, company culture, and ensuring security and compliance.

### DE&I

Life sciences firms are recognising the imperative of integrating DE&I into the fabric of company policies. Firms are channelling their efforts into embedding DE&I considerations within their long-term compensation and benefits framework to address this growing desire among employees. Here are four key areas where companies are dedicating their energy to fortify their commitment to DE&I.

#### 1. Pay and Career Equity in the Remote Work Era

The rise of remote work has prompted a reevaluation of pay and career equity, with companies navigating the effects of this paradigm shift. Organisations are investing in unconscious bias training to counteract biases in remote hiring. This strategic initiative ensures that remote recruitment is inclusive and that decisions made during the hiring process align with DE&I principles. Simultaneously, a focus on equal pay and promotion decisions, tracked in a DE&I-compliant manner, is paramount. Aligning these decisions with DE&I objectives creates a more inclusive and fair work environment.

### 2. Integrating DEI/ESG into Short-Term Incentive Plans (STI)

Companies are broadening their perspective on incentives by incorporating DEI and ESG measures into short-term incentive plans. By doing so, organisations acknowledge the impact of these factors on overall business performance. Establishing DE&I key performance indicators allows organisations to set tangible targets, creating a direct link between pay and incentives. This approach reinforces organisational commitment and serves as a catalyst for positive change.

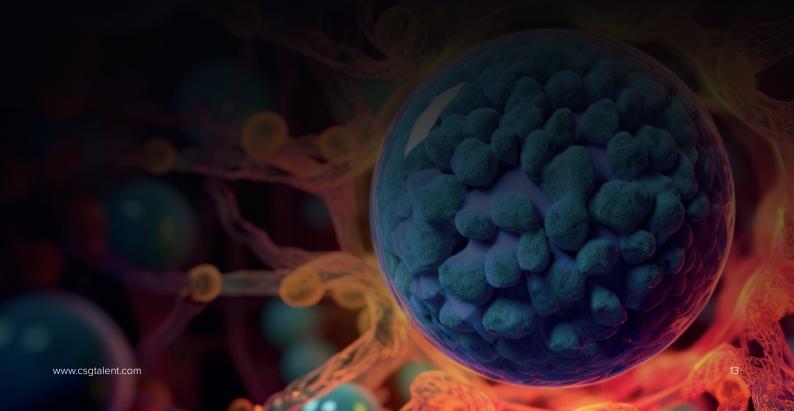
# 3. Assessing Diverse Talent Needs and Adapting Compensation and Benefits

A crucial aspect of DE&I integration involves a meticulous assessment of the diverse talent within an organisation. Companies are actively evaluating the needs of their diverse workforce to ascertain whether adjustments to the compensation and benefits structure are required. This tailored approach ensures that the compensation and benefits model aligns with the unique requirements of diverse employees. This adaptability is vital in reflecting the diversity of the workforce and fostering a more inclusive and supportive work environment.

#### 4. Developing an Agile Compensation and Benefits Model

Recognising the dynamic nature of workforce diversity, companies are focusing on creating an agile and responsive compensation and benefits model. This flexibility enables organisations to adapt to changing workforce demographics and evolving DE&I priorities. By embracing an agile compensation and benefits strategy, companies can align themselves with the rising DE&I agenda, differentiating their offerings in the talent market.

For those companies embracing these DE&I considerations, there lies an opportunity to shape a differentiated and long-term rewards strategy. Beyond traditional benefits, such as extended parental leave and gender pay equality, this strategy becomes a powerful differentiator. It attracts diverse talent and aligns with a broader strategic vision, establishing the organisation as a leader in fostering a truly inclusive and equitable workplace.



# Final Word on Tech,

# Talent, and the Future

# of Life Sciences

The escalating demand for healthcare, driven by global population growth and an ageing demographic, emphasises the critical need for life sciences businesses to embrace digital transformation. The lingering reliance on traditional processes poses significant challenges, necessitating a strategic shift towards a digital-focused mindset.

The imperative for digital transformation gained heightened relevance during the COVID-19 pandemic, compelling life science organisations to envision a connected, accelerated, and digitalised future. Embracing digitalisation enhances collaboration, communication, and the capacity to adapt swiftly to the evolving healthcare landscape.

These technological advancements pose challenges in life sciences recruitment. The industry is witnessing a shift in demand for skills, with a heightened need for professionals with expertise in Al, machine learning, big data, cloud computing, and cybersecurity. The competition for top talent is not confined to the life science sector, as digital transformation impacts all industries, creating opportunities for life science companies to attract talent from other sectors.

However, the "Great Resignation" trend and changing work dynamics have increased turnover rates. The sector faces the paradox of significant growth accompanied by a shortage of suitable talent. The industry's challenge is attracting talent and retaining it amid high turnover rates.

In navigating these complexities, the life sciences industry will continue to stand at the forefront of innovation and societal impact, poised to address global healthcare challenges through continued technological advancements, strategic talent management, and a commitment to diversity and employee well-being.





The life science industry stands at the forefront of global challenges. As the industry continues to navigate a world with unprecedented healthcare demands to combat evolving environmental threats, the need for digital transformation within life sciences has never been more critical. For this transformation to positively impact the industry, it needs skilled, dedicated, and experienced talent to drive progress and success.

Thankfully, our tailored and trusted services are ready to meet this challenge and ensure the industry has the next generation of leaders.

### **Executive Search**

Our expert and dedicated life science executive search team collaborates closely with leading businesses within the industry to enhance their recruitment strategies and ensure they have the senior talent needed to rise to the complexities and needs of this ever-evolving and innovative field.

So, whether it's identifying and attracting talent globally or focusing on specialised technical roles, we have a proven track record of successfully placing senior-level positions across Europe, the US, MENA, and APAC.

Contact our dedicated team to learn more about our services and how we can support you in future-proofing your life science business.





market challenges, talent shortages so they can successfully attract and retain high calibre life science talent.

Our life science experts work with organisations from small, innovative start-ups through to large global corporations placing exceptional senior level talent.

If you're looking for a bespoke recruitment solution for your business, considering a career move or more information about the hiring market right now, please get in touch:

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Contact the team