

# Life Sciences' New Tools: AI, IoT, Data & M&A

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**International | 10:00 AM -06-10-2020**

A sector outlook by Deloitte reveals how life sciences companies are turning towards machine learning, data gathering & analysis, artificial intelligence, and other modern day tools to create value for patients and shareholders

- US\$1.8trn prescription drug sales forecast to grow at 6.9% per annum (CAGR) by 2024**
- China aiming to source domestically 70% of all medical devices used by hospitals by 2025**
- AI & machine learning is feeding into ongoing innovation, as well as time and cost efficiencies**
- M&A deals remain firmly in focus**

By Carole Goldsmith

The global life sciences sector is surging upwards to great heights, with widespread international investment opportunities on the table. [Deloitte's 2020 Global Life Sciences Outlook](#) *Creating new value, building blocks for the future*, 61-page report, takes a detailed look at the factors driving this sector and its investment predictions across the globe.

The report outlines how biopharma and med-tech organisations can use Artificial Intelligence (AI) to increase value for companies and shareholders. There's also a move by technology companies to get into medical research and climb aboard the life sciences wagon.

The comprehensive report is written by Greg Reh, Deloitte's Global Life Sciences & Health Care Industry leader, who has more than 27 years of experience working with pharmaceutical, biotechnology and chemical manufacturing organizations.

This article raises valuable highlights from the report, which attempts to answer questions around creating new value, leveraging opportunities and investing in the future. If you are not investing in life-sciences companies currently, this report shines a light on this exciting innovative sector with predicted statistical data to 2025.

The life sciences field is booming with US\$1.8trn prescription drug sales expected world-wide, between 2019 and 2024, providing a projected Compound Annual Growth Rate (CAGR) of 6.9% by 2024.

Drivers of this growth are predicted to be an increase in drug approvals, increasing oncology therapy sales and potentially US\$109bn from orphan drug sales (treatments for rare diseases). AI in drug discovery alone accounted for the largest market size, rising from US\$159.8m to US\$2.9bn in the forecast period.

In 2018, the global medical devices market was valued at US\$425bn rising to its expected 2025 value of US\$612.7bn, growing at a CAGR of 5.4% over the period. The USA leads the global medical device market, while Japan is the second largest, revealing a 4.6% CAGR forecast over the same research period.

Globally the in vitro diagnostics (IVD) segment is the largest med-tech sector accounting for 12.9% market share in 2018, and predicted to remain the leading device area in the future.

The US Food and Drug Administration (FDA) explains that IVD products are intended to be used for collection, preparation and examination of specimens taken from the human body. All companies who manufacture, repackage, relabel and, or import medical devices sold in the USA, are regulated by FDA's Center for Devices and Radiological Health.

Deloitte's report adds that under the **"Made in China 2025" campaign**, China wants its domestically made medical devices to account for 50% of the medical devices used by hospitals in 2020. By

2025 this is expected to rise to 70%. With the US-China trade war in action, the highest value medtech segments to keep an eye on, for potential trade risks and competition, include the high value medical consumables, gene sequencing, and IVDs.

Reh advises in the report that, "MedTech companies have the potential to drive efficiencies and tackle challenges by applying solutions such as IoT, (Internet of Things) machine learning, additive manufacturing, and augmented reality. A new breed of AI start-ups is leading the way on how new drugs are being developed."

#### Global life sciences M&A deals and IPOs

Total value for mergers and acquisitions (M&A) deals for the global life sciences sector surged to US\$181.7bn in 2019's first three quarters, significantly higher in comparison with the US\$135bn recorded over the same period in 2018.

During the first three quarters of 2019, USA companies were acquirers (A) in 537 deals and targets (T) in 480. Chinese companies were close behind, as A in 382 deals and T in 411.

The other eight leading countries' deals listed in the report, for the same period are, South Korea (A119, T130), Canada (A118, T130), Japan (A102, T121), France, (A85, T78), UK (A 84, T90), India (A56, T48), Italy, (A56, T48) and, surprisingly, Germany, at the number 10 spot (A56, T44).

The largest life science's acquisition last year saw US multinational pharmaceutical company Bristol-Myers Squibb complete its US\$74bn acquisition of biopharma company Celgene in November. Following on in December, Swiss multinational pharmaceutical and diagnostics company Roche, finalised its US\$ 4.4bn deal to acquire gene therapy company Spark Therapeutics, which became a wholly owned subsidiary of the Roche group.

The top three biotech Initial Public Offerings (IPOs) for 2019 are: 10X Genomics – US\$390m, Bridge Bio Pharma -US\$348.5m and Gossamer Bio – US\$317.4m.

The medtech sector had already passed the previous year's M&A, by mid-2019, including eight deals for a total of US\$29.5bn, the four largest deals were by businesses that supply hospitals.

Verily Life Sciences, Alphabet Inc's research organisation and a former division of Google X recorded the largest Venture Capital (VC) round ever in medtech and bio-pharma history in the first half of 2019. The US\$1bn venture round was only Verily's second round.

Life sciences companies announced deals to acquire 37 technology companies in 2019, however, by September more than half the deals were still pending. Most of the acquisitions were software companies, followed by advertising/marketing businesses and IT consulting/services.

The acquirers include six pharmaceutical and two biotech companies as well as 29 health care equipment and supply businesses. Life sciences businesses are doing deals with technology companies to digitalise the business, add new value, enhance innovative practices and, ultimately, achieve domestic and global success.

One of these deals is France-based Dassault Systemes' US\$5.8bn acquisition of US based Medidata Solutions, to create an end to end life sciences' business and scientific platform. Atrys Health's acquisition of Real-Life Data SLU (both based in Madrid) was another deal. Real Life Data specialises in health big data and real-world evidence solutions. The deal is expected to enhance Atrys' work in predictive medicine and deepen knowledge about pathologies, diagnosis trends and treatments.

The report also case studies the human value of technology acquisition for New York healthcare and technology services company Flatiron Health. Extracting the most useful information from pathology and clinical notes from cancer treatment and research still requires humans to completely analyse the data.

To handle this, Flatiron Health hired trained medical professionals to curate unstructured data and train its machine learning models. Electronic health records' data were normalised, making them more useful for clinicians and researchers. By speeding up cancer research, Flatiron Health created new value between humans and technology. The company was acquired by Roche for US\$1.9bn in 2018.

#### Deloitte's Insights reflections

Tailing at the end of Reh's report, *Deloitte's Insights, A short take on the 2020 Global Life Sciences Outlook*, provides some valuable reflections on the issues raised in the report. Insights was compiled by the editorial team, Ramani Moses, Blythe Hurley, Anya George Tharakan, and Nairita Gangopadhyay.

They advise, "The promise of cell and gene therapies is being delivered to patients and rare diseases, previously believed to be incurable, are on the precipice of real cures. AI and machine learning approaches are raising expectations that therapy discovery may not only be more innovative, but also time and cost effective."

Among the other issues raised are: Medical grade sensors are in many consumer wearables, remote monitoring, telemedicine and virtual trials are cutting complexity for patients and connected devices/medical algorithms are delivering data everywhere. They also suggest that in 2020, biopharma and medtech organisations will be examining new ways to create value and new metrics to interpret all the delivered data.

What will sell? The Insight's authors analyse what will sell: Global prescription drug sales are projected to achieve a 6.9% CAGR from 2019 to 2024 and oncology drugs are expected to reach almost 20% of the world-wide market with 11.4% CAGR by 2024.

Worldwide, orphan drug sales are predicted to be double the CAGR of nonorphan drugs over the same period. Also, the IVD market will be the largest medtech segment globally, holding a market share of 12.9% in 2018, and it's expected to remain the number one device area in the foreseeable future.

This article's author, Carole Goldsmith owns shares in Alphabet Inc.