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Future Readiness of Life Sciences Enterprise Supply Chains

Life Sciences IT Services
Market Report – June 2020: Complimentary Abstract / Table of Contents

EGR-2020-46-CA-3781

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Background of the research

Life sciences companies are at a crossroads. The fruits of the traditional blockbuster model have almost been utilized, and enterprises now realize that the way forward would be a targeted approach toward diseases. In the face of enormous pressures across the industry, traditional business and operating models are being reviewed, and often replaced by new strategies designed to accommodate the rapidly evolving and globalized marketplace.

Supply chains are already witnessing disruption across industries, catalyzed by on-demand delivery models and cost optimization drives. The ripple effects of these advancements are also being felt on life sciences supply chains. The traditional hub-and-spoke model will no longer be sufficient to meet the needs of the life sciences industry as it gradually shifts to a precision medicine model. However, challenges such as lack of end-to-end visibility, rampant counterfeiting and theft, as well as process inefficiencies are still issues that life sciences enterprises are currently addressing to make their supply chains resilient.

Through the ADAPT framework, this report examines how life sciences supply chains will adapt to suit the changing business requirements and deliver value to patients. It also analyzes the current efforts of enterprises dealing in supply chain

In this report, we focus on:

- The current state of life sciences supply chains
- Factors that are driving the change in the supply chain landscape
- Everest Group ADAPT framework that depicts the evolution of life sciences supply chains
- Key supply chain initiatives and investments by life sciences companies as well as logistic giants

Scope of this report:

Geography
Global

Industry
Life sciences (pharmaceuticals, medical devices, biotechnology, and other life sciences[1])

1 Includes entities such as Contract Research Organizations (CROs), Contract Manufacturing Organizations (CMOs), and healthcare data & information services firms

Everest Group's ADAPT framework presents key focus areas that life sciences enterprises need to target to get to the supply chain of the future

Overview and abbreviated summary of key messages

This report examines the life sciences supply chain landscape and the current and future focus areas for life sciences enterprises. It focuses on current areas of technology spend, the future growth potential for various digital technologies, as well as key initiatives being adopted by enterprises as per the ADAPT framework.

Some of the findings in this report, among others, are:

Life sciences supply chain challenges

- Life sciences enterprises face challenges while working with siloed working models which inhibits full visibility across the supply chain landscape. One out of ten drugs is a counterfeit drug which not only endangers the brand reputation but also puts patient lives at risk. Counterfeiting and theft are challenges which supply chains have been trying to tackle
- The supply chains are also faced with wastage resulting from damages in shipping and incorrect environment conditions leading to wastage of medications. Lastly, varying regulations further complicate the supply chain landscape

Drivers for change in life sciences supply chain

- The life sciences industry is transitioning from the blockbuster medicine model to a more targeted approach of precision medicine. With increased personalization, logistical economies of scale cannot be attained, which gives rise to the need to improve supply chain efficiency and visibility
- Regulations aimed at improving the current state of supply chain are necessitating investments in technology such as the FDA 21 CFR 11, the United States Drug Supply Chain Security Act (DSCSA), and the European Medical Device Regulation (EU MDR) regulation
- The emergence of e-commerce and rapid delivery models has also influenced the expectations of patients toward buying medication online. This necessitates investments in supply chain visibility and demand forecasting to adapt supply chains for fulfilling on-demand requests

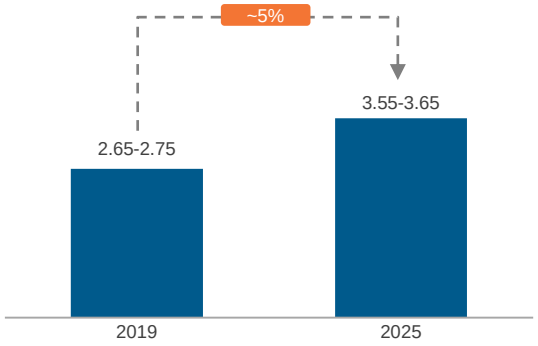
ADAPT framework for life sciences supply chains

- The current technology spend in life sciences supply chains is being led by cloud modernization and IoT initiatives. However, blockchain and RPA hold significant promise for transforming the supply chain landscape
- An analysis of recent life sciences supply chain initiatives reveals that enterprises are resorting to drone-based delivery proof-of-concepts to speed drug delivery, adopting cloud-based systems to improve visibility, increasing focus on robots for warehouse automation, using blockchain-led networks for preventing theft and counterfeiting, and deploying IoT-based environments for monitoring and delivery

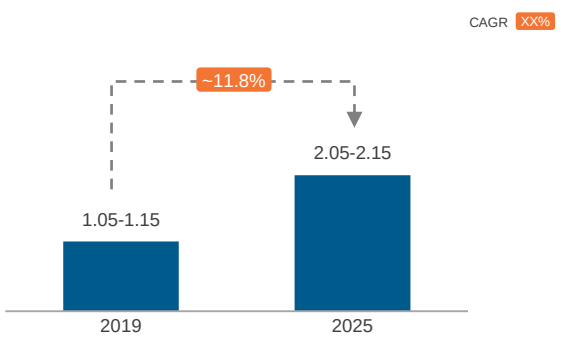
This study offers four distinct chapters providing a deep dive into key aspects of the life sciences supply chain market; below are four charts to illustrate the depth of the report

Biopharma and medical devices supply chain IT services market size and growth

Estimated biopharma supply chain IT services market size[1]
2019-25, US$ billion



Estimated medical devices supply chain IT services market size[1]
2019-25, US$ billion



1 These are pre-COVID-19 estimates. The expected growth rate for the IT services market in supply chain is expected to be lower, post-COVID-19

Supply chain business cases mapped to the ADAPT framework

Accelerate last-mile coverage	Detect supply chain blind spots	Automate supply chain processes and reduce risks	Prevent counterfeiting and theft	Transfer sensitive drugs with minimum wastage
Rapid delivery models and on-demand shopping experience of consumers on e-commerce websites have led to the same expectation for life sciences supply chains. Enterprises must design their supply chains to reach a wider patient base and fulfill their demands faster	Siloed processes and outsourcing of manufacturing activity create opacity in the supply chain, which leads to supply delays, inaccurate forecasting, and wastage. Enterprises are looking to eliminate these blind spots to pre-empt issues and predict demand	Warehouses have labor-intensive processes that are prone to human error and injury and are time-consuming. Enterprises are looking at reducing human effort and speeding up operations – reducing risk and improving throughput	Life sciences companies are challenged with counterfeiting and theft eating up market share, owing to their ineffective tracking and protection capabilities. Enterprises are investing in establishing a robust and secure supply chain to prevent such leakages	The advent of precision medicine has brought about drugs with short shelf-lives and sensitive to fluctuations in temperature. Some regular drugs and vaccines are also vulnerable to fluctuations in the environment conditions.Their high costs and sensitivity necessitate that enterprises establish tight measures to prevent any wastage
On-demand delivery	**Solve for visibility**	**Increase efficiencies**	**Enable security**	**Prevent wastage**

Technology adoption in life sciences supply chains

Technology adoption Low ■■□□□ High

Technology segment	Extent of adoption	Growth potential	Key focus areas and growth potential
AI/ML and Robotic Process Automation (RPA)	■□□□□	■■□□□	• Enterprise applications based on AI and RPA are still in the nascent stages of development • Adoption of AI is limited to determining smart routes for drug delivery. RPA finds limited application in automating warehouse activities • The growth forecast is limited for AI and RPA in supply chain owing to limited use cases in demand planning, fleet optimization, process automation, etc.
Blockchain	■■□□□	■■■□□	• It is only recently that blockchain solutions are going from proof-of-concept phase to implementation, especially in track-and-trace applications • Future potential of blockchain will be focused on areas that enhance security and increase visibility in the supply chain by eliminating paper-based contracts
Big data & analytics	■■□□□	■■□□□	• Big data & analytics find application in optimizing processes and in warehouse layout and demand planning • Future potential will be around improving demand forecasting, optimizing warehouse processes, and shortening fulfillment cycles
Cloud	■■■■□	■■■■□	• The current adoption of cloud is in migration of system data to cloud to increase visibility and improve logistical tracking • Growth in cloud adoption will be driven by migration of siloed systems to cloud, and use of sensors connected to cloud for better visibility
IoT	■■■■■	■■■■■	• With the explosion in connected devices, IoT has disrupted supply chain by offering improved visibility, tracking, and environment control options • Future growth will be driven by aggressive investments in these areas to secure and improve delivery statistics

Key life sciences enterprise use cases for accelerating last mile coverage

Pfizer	Pfizer partnered with WeRobotics and Dominican Republic Flying Labs to carry out autonomous cargo drone deliveries over six weeks in 2019. The purpose of the Pfizer-WeRobotics cargo drone project was to test whether affordable and locally repairable cargo drones could be operated locally and ideally by healthcare professionals to reliably deliver medicines on demand
MERCK	• In March 2020, Merck teamed up with Wingcopter to pilot a drone-delivery program to transport pigment samples from a Merck site to a lab 15.5 miles away, in an effort to replace a slower and more expensive van-delivery program • In June 2019, Merck tested a proof-of-concept where it flew a drone with a temperature-controlled payload over the waters around the Bahamas. It partnered with drone maker Volans-i, which built and operated the all-electric drones and with packaging expert Softbox that developed the temperature-controlled payload box. The cold-chain delivery technology attached to the drone permitted precise temperature control to minus 70 degrees Celsius – required for storing and transporting some vaccines and drugs. Cloud-based technology was used to regulate the environment and track data in real-time during flight
amazon	In June 2019, Amazon announced that in the coming months, a newly designed, fully electric, and completely autonomous Prime Air drone would begin delivering packages to customers as part of pilot tests with the aim to fulfill orders within 30 minutes for customers within 7.5 miles of its warehouses. The project is currently in a pilot phase and Amazon will target those customer residences where the drone can land in the backyard

Research calendar – Life Sciences IT Services

Published | Planned | Current release

Flagship Life Sciences IT Services reports	Release date
Life Sciences Annual Report – State of the Market 2020	January 2020
Life Sciences Medical Devices Digital Services – Services PEAK Matrix assessment 2020	Q2 2020
State of the Market – Life Sciences Medical Devices Digital Services	Q2 2020
Life Sciences Medical Devices Digital Services – Service Provider Profile Compendium	Q2 2020
Life Sciences Clinical Development Platforms – Products PEAK Matrix Assessment 2020	Q3 2020
State of the Market – Life Sciences Clinical Development Platforms	Q3 2020
Life Sciences Clinical Development Platforms – Vendor Profile Compendium	Q3 2020
Life Sciences Digital – Services PEAK Matrix Assessment 2020	Q4 2020
Life Sciences Digital – Service Provider Profile Compendium	Q4 2020

Thematic Life Sciences IT Services reports	
Assessing the Cloud Maturity Journeys of Leading Life Sciences Enterprises	January 2020
Effective Value-Based Contracting in Life Sciences	January 2020
EU MDR and IVDR – How is the Medical Devices Industry Coping?	April 2020
Future Readiness of Life Sciences Enterprise Supply Chains	**June 2020**
Insourcing in Life Sciences – The Quest for Talent Supremacy	Q3 2020
Intelligent Manufacturing for Life Sciences Enterprises	Q3 2020

Note: For a list of all our published life sciences IT services reports, please refer to our website page

Additional Life Sciences ITS research references

The following documents are recommended for additional insight into the topic covered in this report. The recommended documents either provide additional details or complementary content that may be of interest

1. **Regulatory Overhaul of the EU Medical Device Market** (EGR-2020-46-V-3703); April 2020. A series of device malfunctions, coupled with technological and scientific advances in the medical device industry, drove regulators to revamp the decades-old European medical device regulations (the Medical Device Directive or MDD and the In Vitro Diagnostic Directive or IVDD). The European Commission introduced the European Medical Device Regulation (EU MDR) and the In Vitro Diagnostic Regulation (IVDR) on May 26, 2017, with the actual launch expected in May 2021 and May 2022, respectively. The primary goal was to strengthen the safety and effectiveness of medical devices commercialized in the European market. EU MDR was earlier set for a launch in May 2020; however, a series of overwhelming events – primarily the global COVID-19 pandemic, along with the industry's under-preparedness to comply – has forced EU regulators to consider a one-year implementation delay. The new regulations put stringent controls on device classification, clinical evaluation, and post-market surveillance, and are expected to have unique implications for all stakeholders across the industry. To achieve EU MDR and IVDR compliance, we recommend medical device manufacturers to take an organization-wide approach with C-suite involvement and redefine their compliance strategies to remain relevant in the European market

2. **Assessing the Cloud Maturity Journeys of Leading Life Sciences Enterprises** (EGR-2019-46-R-3432); December 2019. Many life sciences enterprises continue to struggle to achieve faster time-to-market, while R&D budgets remain tight. Cloud-based offerings, which can facilitate collaboration within the organization and streamline processes across the life sciences value chain, can help mitigate these challenges. On the consumer side, patients are demanding greater insights into their health. Consequently, medical device manufacturers are working on creating smarter devices and orchestrating an integrated cloud-based connected health ecosystem to drive a superior consumer experience. In this market report, Everest Group analyzes the cloud investments of 15 leading life sciences enterprises by mapping them on Everest Group's cloud effectiveness assessment model, a composite index of distinct metrics related to each enterprise's capability maturity and outcomes

3. **Life Sciences State of the Market – Key Trends, Service Provider Performance in 2019, and Outlook for 2020** (EGR-2020-46-R-3578); February 2020. In 2019, the life sciences industry continued to innovate despite policy changes and increasing pressure to reduce drug prices. Digital transformation has been identified as a strategic imperative by many life sciences enterprises, and service providers and technology vendors are significantly ramping up their digital capabilities and proprietary solutions portfolios to cater to this need. The overall life sciences IT services market is projected to grow at a CAGR of 9% from 2019 to reach US$31 billion by 2025. In 2020, we expect IT services spend growth in life sciences to remain steady due to a combination of market drivers such as unaddressed cost and efficiency opportunities and onshore talent deficit, as well as market inhibitors, such as increased insourcing and rationalization

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