



## **AWS Perspective:**

Real World Evidence  
for Biopharmaceutical  
Organizations.

---

Payers and Healthcare Authorities are embracing innovation and cost improvements to reshape the healthcare system.

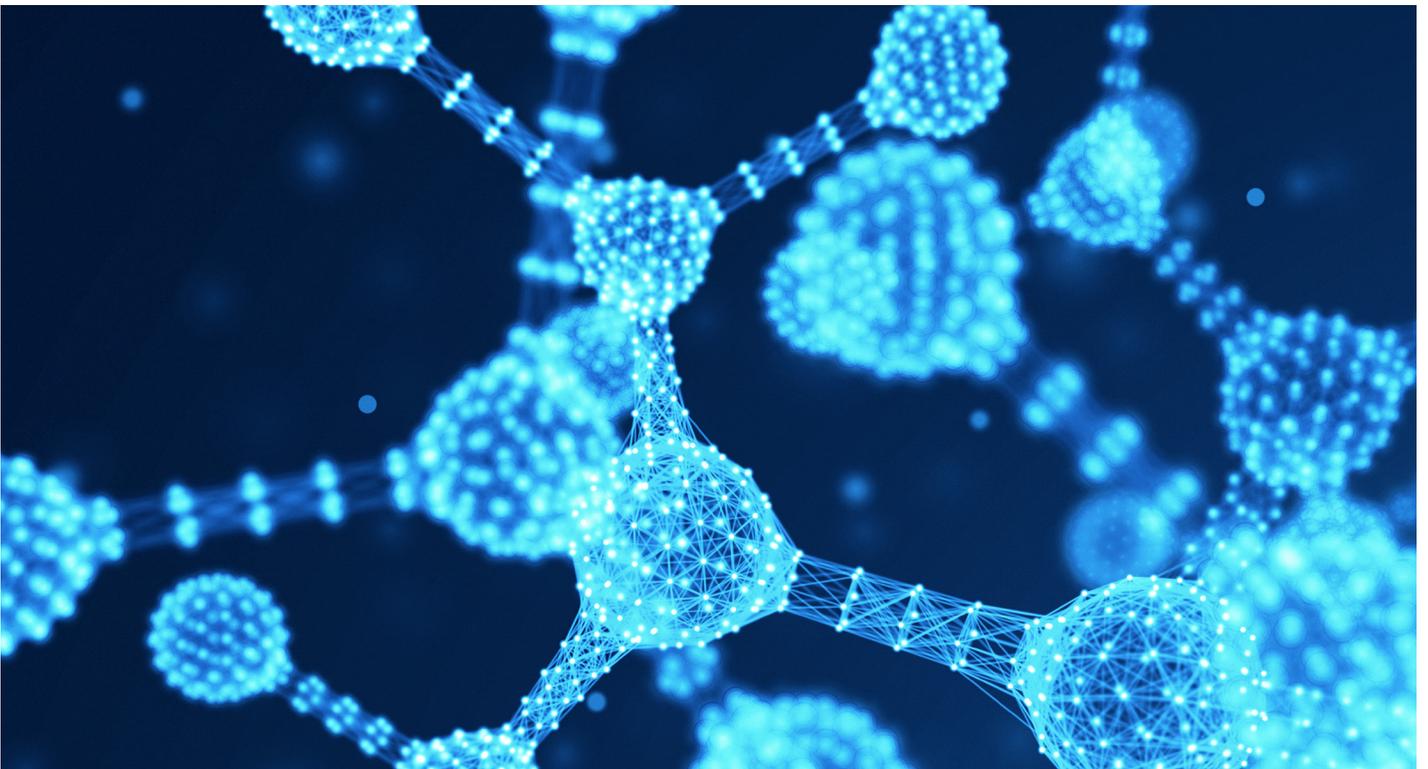
Biopharma companies are feeling the pressures of a global healthcare system in crisis due to increasing costs, medical professional shortages, aging populations and increasing rates of chronic disease. Governments around the world are grappling with systemic issues and are implementing payment reform to better engage the provider community in cost management and improved outcomes while simultaneously encouraging patient engagement and responsibility. This equates to new hurdles for market access and reimbursement.

---

The US is supporting transformation through regulatory efforts and Centers for Medicare and Medicaid Services (CMS) incentive structures.

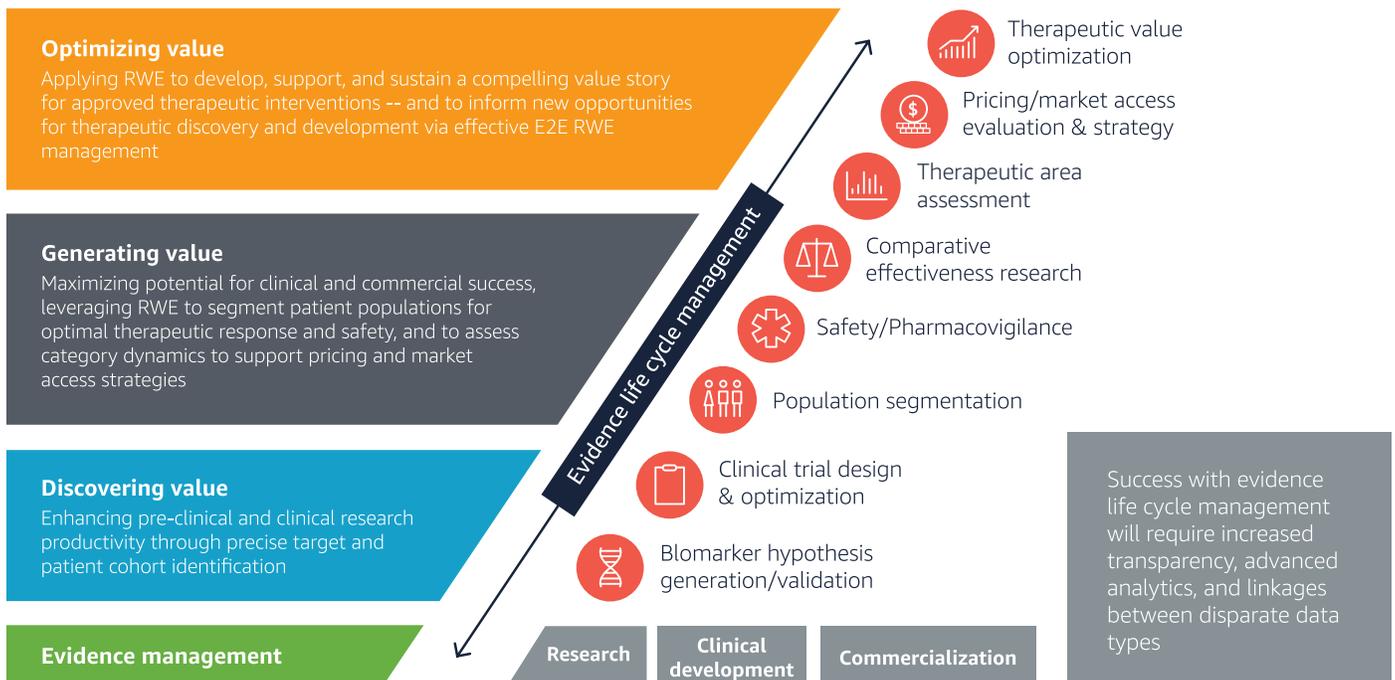
New regulations will require Biopharma companies to provide localized evidence ("real world evidence" or RWE) that their drug outperforms the current standard of care (through better outcomes or reduced costs) for the targeted patient population.

Furthermore, regulators are also accelerating guidelines around the use of technology to drive better patient outcomes at lower costs, helping the Healthcare and Life Sciences (HCLS) ecosystem embrace telemedicine, algorithmic medicine, next-generation capsules, and smart medical devices.



### The implications for Biopharma.

Biopharma will need to expand the use of RWE platforms. Companies will need end-to-end evidence management capabilities across product development, launch, commercialization, and surveillance (see chart below from Deloitte’s 2017 Real World Evidence Report). Biopharma needs to see their products as not just a stand-alone solution but as part of the standard of care. This means that there needs to be a comprehensive set of technology and services that can help improve adherence and the overall patient experience.



### Data is the new form of currency.

While Biopharma companies are using electronic real-world data to make decisions, 60% say this remains a major challenge.<sup>1</sup>

### Algorithms are the new software.

Artificial Intelligence and Machine Learning (AI/ML) can help identify which patients might benefit from specific drugs. However, only 16% of Biopharma organizations are using these tools in their organization, while 28% are considering it.<sup>2</sup>

### Digital Therapeutics win.

Large payers are turning to consumer wearables and technology to drive better outcomes by supporting patients in their day to day lives outside of the clinical setting. Increased use of intelligent devices like medical grade sensors can provide tremendous differentiation and added value compared to branded medicines delivered through “dumb” devices.

<sup>1</sup>Deloitte 2017 RWE Survey

<sup>2</sup>Knowledgent's 2017 RWE Poll

# How AWS can help

- Healthcare and Life Sciences Customer and Partner Ecosystem
- Machine Learning on AWS
- AWS Professional Services

## AWS has a broad cloud-based ecosystem of healthcare and life sciences customers and partners.

Healthcare and life sciences companies customers such as Johnson & Johnson, Merck, Cerner, and Philips, choose AWS because we have experience working in highly regulated industries. We work with our customers to help realize efficiencies and benefits in areas such as high performance computing, data analytics, digital transformation, security and compliance, and disaster recovery.

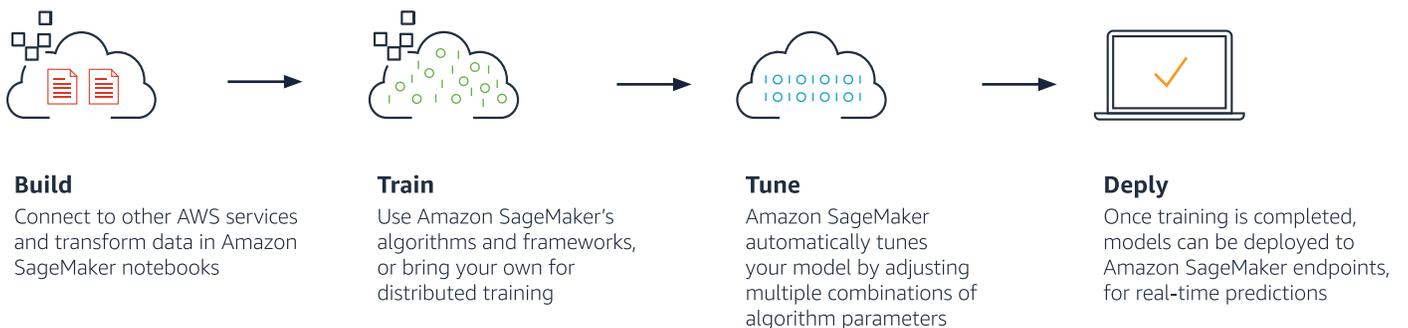
Additionally, Healthcare and Life Sciences competency partners in the AWS Partner Network bring deep expertise and technical proficiency to help accelerate customer innovation. These companies extend the benefits of AWS by offering consulting and technology solutions that help customers meet Healthcare and/or Life Sciences regulatory requirements.

## Machine Learning on AWS.

At Amazon, we've been investing deeply in artificial intelligence for over 20 years. Machine learning (ML) algorithms drive many of our internal systems. It's also core to the capabilities our customers experience – from the path optimization in our fulfillment centers, and Amazon.com's recommendations engine, to Echo powered by Alexa. Our mission is to share our learnings and ML capabilities

as fully managed services, and put them into the hands of every developer and data scientist. Some current customer use cases include: real world evidence to predict patient switching, compliance and adherence and sentiment analysis to understand perception of drugs in-market against competitive products.

## Amazon SageMaker allows developers and data scientists to build, train, and deploy ML models.



## The AWS Professional Services organization can help you achieve your desired business outcomes with AWS.

Adopting the AWS Cloud can provide you with sustainable business advantages. Supplementing your team with specialized skills and experience can help you achieve those results. The AWS Professional Services organization is a global team of experts that can help you realize your desired business outcomes.

For more information about AWS in Healthcare and Life Sciences, go to <http://aws.amazon.com/health>