




THE INTERNET **OF LABS**

It's closer than you think.



In the past 5 years, more new treatments have been brought to market than in the previous 25 years combined.

The ability to discover, commercialize, and deliver advances in medicine will only continue to accelerate. And given this accelerated rate of advancement, the laboratory operations of the last 25 years will not meet the needs of the next 25 years of innovation.

If we apply many of the new advances in technology to the labs, the next frontier of laboratory operations is one where physical location matters less and data matters more. The internet of labs is closer than you think. Consider advances in the last decade that have paved the way for this new reality:

- **CLOUD BASED COMPUTING**

Advances in computer processing power and cloud based platforms have changed the way that pharmaceutical research and development is practiced. Companies like Illumina and N of 1 provide the ability to tap into tremendous capabilities without the need for researchers to develop and maintain them internally.

- **COLLABORATION PLATFORMS**

Advances in collaboration platforms allow patients, doctors, clinicians, and

researchers to come together to practice true translational medicine. Outcomes here have astounding implications for developing novel new therapies that not only treat disease but reduce survivorship issues and improve overall quality of life.

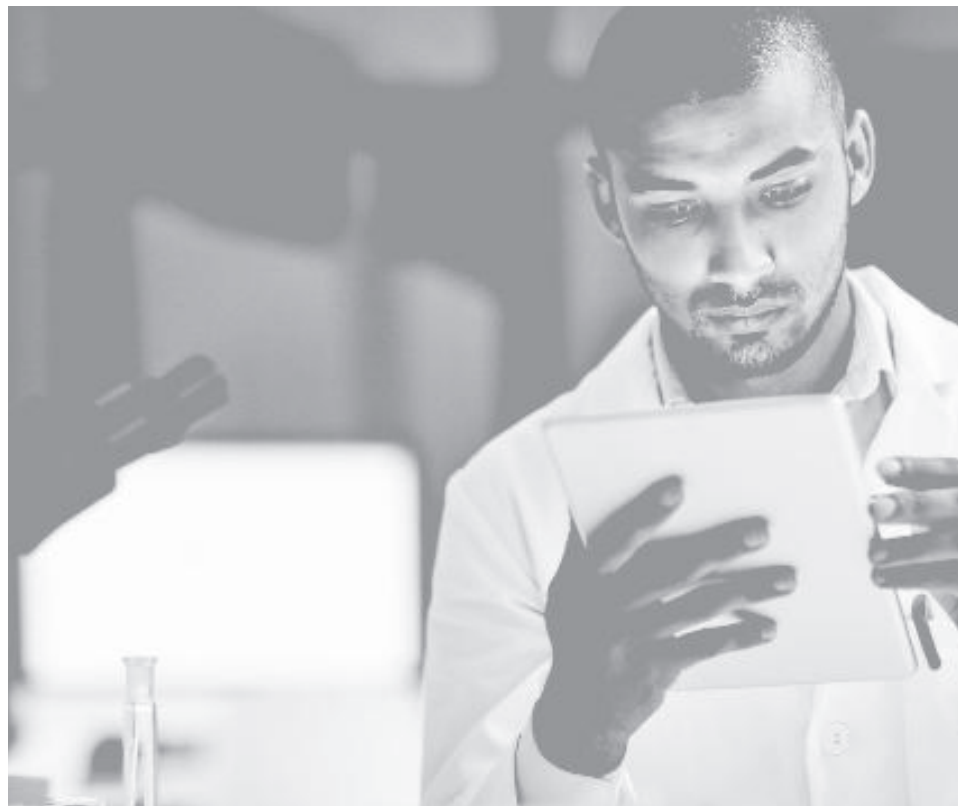
- **HYPER-LOGISTICS**

Advances in order management and logistics with companies like Amazon and UPS mean that commerce can be conducted in a predictable distributed model. Couple this with blockchain technology and the velocity and transparency of the supply chain reach unprecedented levels.

- **CAPACITY MATCHMAKING**

Capacity matchmaking models, like the Uber model, have a strong place in the future of labs. The concept of capacity matchmaking will, on some level, impact the transaction of every good and service that exists today. This will create a democratized form of commerce.

So, how does this relate to labs? If we apply the ingredients above – cloud, collaboration, hyper-logistics, and capacity matchmaking, it's not so difficult to picture a world where the physical location and ownership of the lab matters less. Clearly, in some types of testing there will always be a need or benefit from proximity but that will be



the exception. The sample and the data are what's important. And, if the integrity of the sample can be maintained, and the validity of the data can be verified, the quality control lab would not need to be a physical location.

Ask yourself these questions:

- Why would a quality assurance review and approval have to be done in the same building as the testing?
- Why does testing need to be done in the same location as manufacturing?
- Why do you have to own and maintain the laboratory assets?

Given the advancements in technology related to cloud, collaboration, hyper-logistics, and capacity matchmaking, the necessity of these procedures becomes less obvious.

There will certainly be challenges from a regulatory perspective. Lab systems, tech transfer, validation, facilities inspections, and approvals have grown into a multi-billion dollar industry. However, with an innovative and forward-thinking mindset, challenges can be overcome. It is possible to find a way to enable a future where safety, identity, strength, purity, and quality can be assured, coexist, and even thrive within this new paradigm. And, for the first leaders willing to drive their organizations to the future, the cost savings and returns will deliver tremendous value to your company and the industry.

The business case is too compelling to stop progress for risk mitigation. We have analyzed the laboratory operations spend of large, medium, and small pharmaceutical companies. We



have looked at this expense as it relates to product development, analytical testing, and manufacturing operations. We have compared this to the costs of the traditional CDMO outsourcing model. And, we have applied the basic principles of cloud, collaboration, hyper-logistics, and capacity matchmaking. Taken together, we believe that you will see the rise of super-labs which are designed to run with extreme efficiency and the ability to offer the latest in scientific capabilities. These super-labs will not just be one centralized lab but a network of laboratories, i.e., the internet of labs, which manage the shipping, receiving, testing, and data management with hyper efficiency.

In a super-lab:

- Location will no longer matter because data is the asset that will be monetized rather than the test or the equipment.
- Testing will be conducted and data will be returned for decision-making processes. Quality assurance will be performed in real-time by remote monitors that are agents of a sponsor or

customer.

- For large pharmaceutical companies, quality operations will become a cockpit, or a command center, not unlike that of a battleship or aircraft carrier.
- For small pharmaceutical companies, quality operations will become a kiosk service, where a portal dashboard can offer real-time data, alerts, notifications, on relevant quality data.

The long-term cost-benefit implications are significant. For third party or contract labs there is a real opportunity to change a business model that has essentially been the same for the last 25 years. For pharmaceutical companies there is a real opportunity to reduce costs, increase profits, improve R&D efficiency, and reallocate spend to areas of critical differentiation like scientific advancement and market access.

If you would like to learn more about our research, cost / benefit analyses, or Lab Forward Optimization Services, please feel free to reach out. The future is now for quality operations.

About the Author



JOE D'AMBROSIO,
PARTNER

Joe is a partner in the Clarkston Management Consulting practice. In this capacity, he works with client leadership on breakthrough strategies that deliver business results and shareholder value. Joe has spent 25 years working with global clients in the life sciences and consumer products industries. He has advised on all aspects of business strategy, innovation, mergers and acquisitions, and operations.



What else can you expect in the lab of the future? Read on to find out.

CHECK OUT OUR BLOG

CLARKSTON
CONSULTING

