The changing life sciences landscape: engineering solutions for a healthier world
2020: Life sciences in the spotlight

The life sciences industry has become a critical priority for policy makers, markets and society. The dynamics and challenges of timely pharmaceutical R&D and manufacturing are now essential to the world’s ability to function through the immediate and longer-term response to the COVID-19 pandemic.

While the industry has traditionally felt squeezed by national governments, a growing number are looking to directly support investment in pharmaceutical manufacturing, as they place a growing emphasis on security of supply and local production, increasingly considering life sciences as critical infrastructure.

With the industry in sharp focus, it will be judged on its ability to innovate through the ongoing crisis, not just in R&D but in drawing out the strengths of a strategically-aligned supply chain, and seizing opportunities for manufacturing transformation.

In this viewpoint, Wood looks at the challenges faced by life sciences, and offers insights into areas of critical importance in developing short and long term solutions to address these new market dynamics.

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Accelerating longer term shifts

Through and beyond the global pandemic, life sciences are becoming increasingly viewed as a strategic, high-value sector critical not only to human health and welfare, but to national and global security, economic stability and growth. Long-term strategic priorities for the sector are likely to see greater focus, while immediate needs could be fast-tracked by governments and through more effective supply chain partnerships.

A renewed focus on asset resilience, data management, automation, and other technological innovations will support the development of new production models, while extending the life of existing manufacturing assets and infrastructure.

Global spend grows, greater government intervention to add impetus

- Global health expenditure per capita has doubled in last 20 years, growing ahead of the global economy.
- Global health spending in real terms grew by 1.7% a year while the economy grew 3.0% a year between 2000-2017.
- Global healthcare spending was already growing faster than GDP before COVID-19; fuelled by the decline in blockbuster drugs coming to market, the increased cost of high-tech therapies in developed economies, and improved provision of more basic therapies and healthcare elsewhere.
- Governments can now be expected to release greater funding, especially in the areas of testing and diagnostics, medical devices and vaccine development and production, and particularly in historically underinvested economies where consumers will demand a step-change in provision.

Security of supply is bringing new pressures on global strategies

- According to the International Trade Commission, last year the US imported $127 billion worth of pharmaceutical goods.
- Only 28% of US active ingredient manufacturing is domestic.
- The EFCG estimates that upward of 80% of chemicals used to make drugs sold in Europe now originate from China and India.
- Counterfeit drugs are estimated to cost the industry between US$75 and $200 billion a year, along with significant risk to human health.

With the bulk of pharmaceutical ingredients and a large proportion of finished product sourced from imports, pressure from governments in developed countries to enhance security of supply is challenging the global strategies of pharma majors, as the risks inherent in the pharmaceutical supply chain become clearer through the COVID-19 outbreak.

Meanwhile governments in developing economies have for some time been looking to increase self-sufficiency to reduce the cost of imports and their reliance on majors.

Add in the changes needed to meet the more flexible, customised production of the future, and it becomes clear that a radical overhaul of asset portfolios and global footprints will be required for the pharma landscape of the future.
In the context of COVID-19, short-term market uncertainties, and longer-term shifts, strategic and operational responses must include solutions that reconcile these often conflicting trends that stem from R&D-led opportunities, evolving customer demands, politics, cost pressures, technological advancement and sustainability challenges.

Build innovative partnerships to maximise value and optimise costs

As priorities shift and complexities increase, the industry must look to new models of procurement and partnership in the supply chain, from ingredient supply and R&D, through to site design, construction and optimisation, and beyond into product distribution. Flexibility will help unlock innovation, production efficiencies, address urgent demand bottlenecks, and facilitate technological and data management progress. Advanced supply chain analytics and digital supply chains are already unleashing transformative efficiencies in other sectors, as are contracting models to incentivise performance and share risk and reward.

Exploring creative approaches to portfolio management, such as integrated project delivery teams, or portfolio-wide CAPEX and OPEX contracts with global partners, rather than site-by-site contracting, can also add value to the supply chain.

Be more responsive, flexible and efficient through data and technology

According to Deloitte, the artificial intelligence market in drug discovery is expected to increase from $159.8 million to $2.9 billion in 2018-25 at a compound annual growth rate of 52.9%. Yet this digital revolution in pharma is not restricted to R&D. The sector is lagging in realising the value of data, and must embrace data management throughout the lifecycle from track/trace through sales, logistics, facility design, production and decommissioning. Partner research suggests that nearly 60% of organisations don’t measure the financial cost of poor-quality data and the pharma sector is no exception. The value of data management and digital technologies remains unrealised in the industry’s complex supply chain, where enormous efficiencies can be realised from BIM, digitally interconnected facilities, digital supply networks, digital twinning, connected workers, artificial intelligence, augmented and virtual reality, production automation, through to innovations in process commissioning, logistics and energy management.

With an ever-expanding range of digital and technology solutions in development, embracing the fourth industrial revolution will be essential to an industry under increasing demand for agility, efficiency and speed to market. Industry collaboration, especially when fast-tracking urgent responses, is becoming a new reality for a sector naturally focused on closely-guarded intellectual property. And in a pandemic-focused world, effective contingency planning has become paramount, pointing again to the deep value of closely-connected, integrated supply chains that are critical to human life.

Sustainable solutions: integrate clean power and embrace circular economy principles

Sustainability makes good business sense, for the long term. With a visible focus on environmental commitments and tangible actions to deliver them, combined with a focus on asset and supply chain resilience in a fast-changing world, the pharma industry must demonstrate and deliver a positive impact on its community touchpoints and the welfare of humanity at large. A new focus on ethical sourcing, engagement with smart-city master planning to support new methods of remote delivery to end-users and reduce logistical bottlenecks, integrating renewables to support decarbonisation, are just some of the innovative approaches that can help deliver real sustainability.

Focus on assuring resilience and reliability

While the new wave of drugs may bring a need for smaller, more flexible production facilities, the need for large-scale manufacture remains, requiring reliable and optimised operation of existing assets. A large proportion have been in operation for many years, and even where production processes have been modernised, supporting utility infrastructure may become unreliable, exposing inefficiencies, unsafe conditions, risking downtime or closure. Reliability, availability, maintainability and safety protocols provide an opportunity to bridge this gap and embrace best practice in asset management, maintaining efficient production across the portfolio lifecycle. A lack of consistency and delays to many new infrastructure projects also highlights opportunities to transform asset development by embracing best practice in programme management from across industry sectors.

With thousands of new asset developments already in progress worldwide, and the potential for a new wave of infrastructure from reshoring, enhanced project assurance, value and timely delivery are no longer just desirable – they are becoming critical to the pharma industry’s ability to prosper.

Present an industry on the forefront: the value of reputation

With evidence that the sector’s reputation in society remains low, the COVID-19 pandemic represents an opportunity for the industry to enhance its standing among consumers and other stakeholders in what is an increasingly discerning marketplace. Effectively communicating the scale of investment and achievements in treatment development and new collaborative approaches to healthcare, its ethical position and the constraints and safeguards under which the industry operates, can help change perceptions. This is needed for an industry which increasingly requires its entire value chain, from investors through to end users, engaged in supporting its progress. While major players are already making impressive environmental and energy-use commitments, they must find new ways to bring these commitments to life with stakeholders and society as a whole, to reposition and transform how the world sees this industry.

How can the industry respond to this changing landscape?

Create supply chain value with outcomes-based commercial partnerships

Watch Wood’s webinar for insights into remote operating data acquisition

Map your journey to decarbonised assets with Wood’s SCORE framework

Embrace partnerships and ingenuity for a sustainable recovery

How are you responding to these challenges? Take our pulse survey now and we’ll share the results with you very soon.
Wood and life sciences

We are here to help you navigate this evolving world, tailoring solutions that deliver your business objectives throughout the asset life cycle and the challenges ahead.

Leveraging our global and multi-sector expertise alongside our innovative client partnership approach, ensures realised value and assured delivery. We blend asset development, operations and consulting services, drawing on the ingenuity and collective expertise from across our business - and yours.

The result is optimised, sustainable and technology-enhanced outcomes across your asset portfolios.

Contact us:
To find out more about how Wood can deliver solutions to your life science challenges, please connect with us.

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Pulse survey
We’d love to involve you in further exploring the challenges outlined in this Wood viewpoint. As a next step we’d like to ask for a couple of minutes of your time to take part in our pulse survey, so we can continue to develop partnerships and solutions to support life sciences through the challenges ahead. And of course we’ll share our learning with you as it progresses.

Learn more
Read more about how we reimagine life sciences to transform how we respond and reshape what lies ahead: