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Why Digitalisation is Long Overdue for the Life Sciences Industry: Expert Opinion

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By Pierre Kardasz, Asia Pacific Regional Industry Manager, Consumer Packaged Goods and Life Sciences, Rockwell Automation Inc.



During the early stages of novel coronavirus (COVID-19) outbreak, there was a lot of anticipation over the “return to normal” once a vaccine had been discovered. Analysts had predicted a “V-shaped” economic bounce-back from as early as fall 2019. But the reality has been far more sobering; government scientists and medical experts now express “cautious optimism” that a reliable candidate might only be available to the public in early 2021, with a stronger likelihood of its launch in the later part of the year.

It is worth noting that vaccines are just one – albeit crucial – aspect of bringing COVID-19 under control. Since the virus was first identified in Wuhan, China, in December 2019, the life sciences sector has played an outsize role in disease management: from prevention (manufacturing of hand sanitisers and personal protective gear); diagnosis (development of swab testing kits and antibody tests); to treatment (ventilators) and the discovery of a cure or vaccine.

Once a rare occurrence, epidemics are set to become a regular part of this century due to prevalent urbanisation, globalisation, and factory farms. More so than any other event in living memory, the global spread of COVID-19 has highlighted the importance of the life sciences industry. However, time may not be on our side for long. Taking lab testing, human trials, and various rounds of scientific, commercial, and regulatory approvals into account, experimental drugs average a span of 12 years to hit the market. Hence, speed and efficiency are of the essence to sustain a rapidly interconnected population and yet there must be no compromises to safety and quality.

The long-term solution to this quandary is no different from that of all modern enterprises – organisations that that have embraced digital transformation are better positioned to adapt to immediate demands while maintaining production of other critical items.

Here are three key areas in which life science companies should look to digitalise:

1. **Maintaining safety and business quantity**

Essential as they may be, employees in the healthcare and pharmaceutical sectors are still subject to standard social-distancing measures. Unlike their office-based peers, equipment operators, manufacturing plant workers, and lab technicians

are just some of the roles that require a physical presence on-site.

Skyrocketing demand for medical equipment and life-sustaining drugs mean that pharmaceutical firms are tasked with the additional challenge of keeping production lines moving faster than ever during this crisis.

Deploying remote technologies

Building capability to manage operations remotely is paramount to maintaining plant safety while safeguarding business continuity. For example, augmented reality (AR) provides machine operators with step-by-step instructions directly to smartphones, tablets, and wearable devices such as smart glasses.

This enables telecommuting supervisors to provide guidance to their site-based colleagues. It also allows for technical specialists to remotely troubleshoot and support manufacturing operations without stepping foot in the plant.

2. **Addressing fluctuating demand at scale**

Global supply chains have been hampered by worldwide lockdowns, travel restrictions, and labour shortages as a direct result of the pandemic. Despite laboratories, medical testing facilities and manufacturing plants being stretched to maximum capacity, many life science players are hesitant to expand for fear of uneven demand patterns and prolonged economic uncertainty.

Connecting an enterprise with IoT technologies

The Internet of Things (IoT) gives businesses greater oversight and predictability of supply chains as well as allowing them to gain a more holistic control of their assembly lines which are fundamental to increasing efficiency and scalability to meet heightened demand as well as adapting rapidly in accordance to fluctuating future needs.

3. **Allowing agility, adaptability, and knowledge transfer**

To ameliorate the shortage of medical supplies, many businesses have pivoted towards directly addressing the demand for healthcare. Notable instances include luxury conglomerate, LVMH, converting perfume factories to make hand sanitisers; consumer technology firm, Dyson, temporarily began developing ventilators; more recently, Kodak, once synonymous with analogue photography, has announced a strategic shift towards becoming a pharmaceutical player.

Altering manufacturing capabilities and reskilling employees require significant investment. This necessitates a means to quickly adapt production lines and skillsets, while retaining the flexibility to switch back.

Enabling flexible manufacturing lines through ICT

Independent cart technology (ICT) allows businesses to rapidly adapt to changing demands and deliver increased throughput and much faster machine-changeover times to produce new products at scale. A high degree of automation means that less on-site intervention is required than with traditional production lines, enabling plants to run effectively without staff being physically present.

Combined with analytics, simulation and other cutting-edge technologies, such as wireless power transfer and wireless communication, ICT can elevate manufacturing to the next level. Data analytics provide full transparency into how machines are running – maximising uptime – while AR and virtual simulations can be leveraged to create digital twins allowing for device optimisation.

Giving frontrunners a leg up

In the past few weeks, rays of hope have emerged from the gloomy forecast. Human trials for AstraZeneca and Oxford University's promising vaccine candidate have resumed and in Asia, China's Sinovac expects to begin analysing final-stage human trial data on its coronavirus vaccine candidate this year having already begun volunteer tests.

For the research labs, pharmaceutical firms, and biomanufacturers racing against time, accelerating production capabilities and reducing time to market is key to saving as many lives as possible. To address the added layer of complication brought on by the disruption to global supply chains, Rockwell Automation has managed to reduce production turnaround time from weeks to just days by helping manufacturers quickly implement innovative automation solutions at scale while helping ensure adherence to the stringent regulatory and compliance requirements for medical devices.

Charting a digital roadmap for the future

The term “unprecedented” is commonplace in today’s vocabulary but the reality is that change has always been the only constant. Digitalisation marks the future for all industries; not just life sciences. In the short term, it allows for quick wins: efficiency, adaptability, and business continuity. In the long run lies the real reward – a trove of interoperable and real-time data that can be mined to analyse trends, anticipate future needs, and build the framework for innovation and scientific discoveries.

When implemented successfully, the digital transformation of operations and processes seamlessly merges the formidable capabilities of human knowledge and artificial intelligence. For all the talk about flattening the curve, it is time we invested in digitalisation to stay ahead of it.