

# Digitalization and the Pharmaceutical Sector

To say that the pharmaceutical sector and digitalization are intrinsically linked is perhaps one of the most obvious statements possible.

□ *Article by Alf Goebel, CEO of advanco*



October 2023

**T**he two are so entwined that it is impossible to think of one without the other. It is powering virtually every aspect of the sector today, which is a trend set to get even greater – if that is even possible – in the years ahead.

Advanco is proud of its track record in encouraging the pharmaceutical sector to invest in its digital capabilities. We have long realized that the smart factory will soon become a common reality, thanks to the already smart machines that keep getting even smarter as they access more data.

Advanco's systems are pioneering the way forward for companies across the globe due largely to the wealth of experience that can be found within our team, which closely monitors current and future trends. Therefore, let's take this opportunity to share their knowledge and remind ourselves of some of the key digitalization points that we should all be aware of that are relevant for both now and the future.

### **A current digital snapshot**

Digitalization already connects everything to do with the pharmaceutical sector. Not only has it already created new levels of transparency that have never been seen before, but it is also completely changing the way that operations on the warehouse floor are being carried out.

Let's not forget that we are sitting on the cusp of Industry 4.0. – and some would say we are already sitting within it – which has digital systems at its very core. While Industry 4.0 has been called a new industrial revolution, its implementation will more likely resemble an evolution in which digitalization and automation meet very complex product portfolios and life cycles.

A combination of cyber-physical systems, the Internet of Things and the Internet of Systems will power Industry 4.0 and allow the smart factory to become a reality. As a result of the support of smart machines that keep getting smarter as they get access to more data, the global pharmaceutical sector will become more efficient and productive and less wasteful.

We at advanco therefore repeat once again our view that all companies, of all sizes, within pharma need to ensure their digital capabilities are in the best shape possible.

Crucially, that does not necessarily mean every company needs to rush out and get the very latest systems installed now. What is far more important is that they retain a strong awareness of what the future of the industry will look like and are ready to embrace these changes when the time comes to do so.

## **Industry 4.0.**

It is impossible to talk about digitalization and the pharmaceutical sector without addressing Industry 4.0. in a little more detail.

While Industry 4.0 has been called the fourth industrial revolution, its implementation will more likely resemble an evolution in which digitalization and automation meet very complex product portfolios and life cycles. What is certain, however, is that Industry 4.0. will revolutionize the way the pharmaceutical sector works. Once only possible for international blue-chip corporations, robotics will become much more affordable and available to organizations of every size. From picking products at a warehouse to getting them ready to ship, autonomous robots can quickly and safely support manufacturers.

Likewise, we will see distribution centers that will use autonomous cranes and trucks to streamline operations as they accept shipping containers from the ships.

### **New-edge computing**

One of the core developments that Industry 4.0. will bring is the much more wholesale adoption of edge computing – a distributed IT architecture in which client data is processed at the periphery of the network, as close to the originating source as possible. It shifts the focus from the central data center to the logical edge of the infrastructure -- taking storage and computing resources from the data center and moving those resources to the point where the data is generated.

The impact of this new-edge technology on the pharmaceutical track-and-trace sector will be huge, especially where overall supply-chain operations are concerned.





We have already seen a move towards a much more agile, local supply chain. The rapid uptake of digital barcode scanning systems combined with the very latest, cutting-edge technology, has made supply chains much more secure. New-edge computing will tighten this up even further. It will power automatic, time-sensitive supply chain processes in warehouses, factories, and manufacturing facilities. These processes will lessen the need for human management and create optimal outcomes while eliminating the risk of error due to manual processes.

### **How the future of healthcare and digitalization are intrinsically linked**

It is becoming clear that digitalization will affect the pharmaceutical sector for the companies that work within it. However, what about individual people and those who rely on medicines for a better quality of life?

The fact is that digitalization will touch everyone on an individual basis, right across the entire national health system and even the entire network of local pharmacies. If you think this is already the case – you haven't seen anything yet.

The very concept of health itself is becoming increasingly digital. Think of all the opportunities in healthcare, from tele-health solutions, including advances such as smartphone applications to wearable devices, up to sensors that may be ingested or implanted under the skin.

There is also a whole raft of personal medicine applications, including advanced analytics and digital technologies such as Artificial Intelligence, Machine Learning, Internet of Things and Blockchain to manage patient treatment lifecycle at an individual level.

### **The digital supply chain**

Advanco was one of the first companies in the pharmaceutical sector to highlight the importance of how digital systems will sit behind a revolution in how supply chains are structured.

We are already seeing a move towards local production and sourcing through the repatriation of supply chains into Europe and the USA, resulting in a much more agile supply chain overall – with digital systems powering this right from its very core.

The rapid uptake of digital barcode scanning systems combined with the very latest, cutting-edge technology,

has made supply chains much more secure – and ongoing technical advancements mean it will continue to get even more watertight and secure in the future, powering automatic, time-sensitive supply chain processes in warehouses, factories, and manufacturing facilities.

These processes will lessen the need for human management and create optimal outcomes while eliminating the risk of error due to manual processes.



### **Conclusion**

Digitalization and the future pharma sector are already intrinsically linked together. This will continue in the future to the point that it will be impossible to pull them apart.

Digital processes and technology will drive a much more automated process, which is already emerging due to Industry 4.0. and will result in the warehouse environment needing a much-reduced human workforce. Indeed, this combination of technology and Industry 4.0. will give the pharmaceutical sector an opportunity to revolutionize the way it works.

The ability for individual companies to cooperate and complement each other in real-time will enable giant strides to be made for the overall efficiency of the sector. All individual components, be it medicine producers, track-and-trace specialists, or logistics providers, need to look now at what they need to do to prepare for the changes ahead. Failure to do this could well mean they will experience failure across the board in the future – so it is worth taking stock now about what can be done to prepare for the digital road ahead.

