

How much of the future is already available today?

Christoph Jansen

Mettler-Toledo (Analytical, Nänikon, Switzerland)
christoph.jansen@mt.com

Today, many exhibitions, trade shows and conferences have at least one block presenting and discussing what the lab of the future might look like. The visions range from futuristic furniture design to connected IIoT (Industrial IoT) communication, augmented reality, artificial intelligence, and Blockchain etc. A thicket of buzzwords are summarized under the term "Lab 4.0", which was derived from "Industry 4.0", the next generation of manufacturing revolution. Different disciplines approach the topic from different angles and trigger the wish to do something revolutionary in the name of these terms. Sooner or later lab suppliers will be asked to add value to their Lab 4.0 concepts, although practical applications and beneficial use cases are often difficult to find. However, they are still appealing just by the different ways of thinking out of the box. Topics such as the usage of Blockchain have a mistakenly bad reputation due to Bitcoin stories. However, Blockchain technology already has prominent use cases, for example in the supply chain of big food suppliers, such as Walmart.

Next to any enthusiasm, digital transformation may create fear for lab technicians and other workers. Not only are the Lab 4.0 concepts difficult to understand; they may result in total human control, and fear of "Big Brother" scenarios. Some may fear the idea of work force redundancy due to increased automation. Cyber security and "thing bot" risks are also big concerns. These fears are real and must be considered. We need a concept for the right level of intelligence and communication skills to add to our hardware "things".

As an instrument supplier, Mettler-Toledo and its development concept aims for continuous improvement. This of course includes measurement precision and quality, but also usability. Supporting smart electronic workflows is one of the focus topics. The digital transformation, which was amplified by necessity during the Corona crisis, creates challenges but also opportunities. Seamless data-flows through smart components and platform software solutions reduce handling effort and errors and improve data quality with higher efficiency. By moving towards electronic workflows and seamless integrated data flows, we aim for not only simple result transfer but also contextual data (meta data), for example to confirm the validity of results and fulfil compliance regulations. Many of the buzzwords used in Lab 4.0 discussions can be applied to existing solutions and are also an inspiration for future developments.

[1] <https://q-more.chemeurope.com/q-more-articles/256/how-prepared-are-we-for-the-digital-transformation-in-the-lab.html>