An approach to laboratory as an integrated part of the industry of the future

According to experts on real-time analytical data management, industry of the future will be outlined according to an integrated view of information from all departments of the company. The Internet of Things applied to industry (IIoT-Industrial Internet of Things-Industry 4.0) would provide us with all the information to make informed business decisions, thanks to a simple configurable dashboard displaying the essential data at the right time.

Having said that, nowadays it is not easy to get immediate access to the essential analytics lab information. For companies to take advantage of all their data, we need to make our labs more "intelligent". In this process towards a more intelligent lab everything leads to integration, harmonization, and integration efforts: the well-known "paperless" transformation.

However, the shift to a paperless lab is not an easy way to go through. Workflows are complex and include several paper sections that make more difficult compliance with regulations. The current emphasis is more on systems we can implement immediately, rather than on revising processes to analyze and simplify them in order to implement only the solutions that best fit your needs.

We are on the threshold of an important decision. Implement a new data management system in our lab? Replace the legacy system, update it or add complementary satellite applications? As an independent professional, my goal is simplifying the decision-making process. Yet some considerations are unavoidable and I am going to start from this simple recommendation. Don't focus on LIMS, LES, ELN, CDS, SDMS, ECM etc. Don't make the decision too soon. Once you´ll know the requirements you really need to meet and once you´ll got a clear definition of the goals to reach, the user requirements document will just speak.

Today end users busy themselves choosing and installing apps in their smartphones or their tablets to check their bank accounts, make a reservation in a restaurant, get the weather forecast or even check traffic status before they leave for work. we are able to choose and configure in which format and how often we´d like to get the information in our day-to-day life but we do have to face not so attractive software interfaces once the lab coat is on.

Fortunately, current outlook has changed a lot. The dynamics of the laboratory computing market are shifting towards a greater choice. The number of companies dedicated and specializing in this area is proliferating, both in Europe and France. At the same time, current technical possibilities open the door to a wider choice of products: intuitive interfaces (configurable according to needs, preference and taste), solutions that can be implemented without much pain, versatile platforms, mobiles, web apps, etc. And all this without compromising information integrity in the terms of very often mentioned ALCOA+ criteria, but, conversely, allowing it to fit into a workflow, revised in order to delete every paper section as far as possible.

As part of the organization of the European Congress Paperless Lab Academy, we want to focus the 5th edition to be held on 4 and 5 April in Barcelona in the creation of a road map 2020 for digital convergence. The goal is turn scientific information into practical info, or, in other words, start the evolution process towards an intelligent paperless lab. We'll talk solutions, user experiences, methodologies, initiatives and work results from group work such as the ones by Allotrope Foundation and Alliance Pistoia, together with what the future has in

store for us regarding Industry 4.0 Internet of Things. In 2018, if all goes as expected, we will continue to reflect on this in France!

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2 The ALCOA criteria (Attributable, Legible, Contemporary, Original, and Accurate) are good practice rules defined by the American Food and Drug Administration electronic clinical research documents must comply with.

3 To learn more: www.paperlesslabacademy.com

4 International association of pharmaceutical and biotechnology companies dedicated to the construction of a laboratory structure that improves efficiency in the acquisition, archiving and data management. To learn more: http://www.allotrope.org/

5 Group of industrial experts from the life sciences sector brought together to remove barriers to innovation in research and development. To learn more: http://pistoiaalliance.org/