

## Supporting Decision Makers in Real Time about Quality Lab Analyses on the production process

INDUSTRY 4.0

Industry4.0 continuous production process plants can be very complex and have to manage many different information and data at various levels: production lines data for monitoring the production process status, administrative data to manage orders according to production capabilities, analysis of the quality of the matters produced to assure to have reached the expected quality level and to monitor the production quality.

Different actors are involved in these complex process: on the production management, on security and maintenance of the plant, on management, on the administrative office and product/process quality laboratory, on the logistic that is responsible for the

transport of finished products. In the ALTAIR chemical plant (<https://www.altairchimica.com/>) each day about 50 analyses with a total of about 500 different measures are performed by their control quality lab. The Lab analyses the quality of the final and intermediate products and, in the case of problem, has to interact with the different decision makers. They need to receive summarization of the problem in any place they are, and they need to have the possibility to express their decision in short time to solve the problem. For example, accepting compromise, describing corrections, etc. . Typically, this activity was performed by phone, with a very time consuming process, also expensive and not precisely tracked.

### Take a look at the results

To cope with the above needs SNAP4 company proposed and implemented a solution for the automatic management of notifications and negotiation from Quality Lab to decision makers. Snap4City solution was already in place in Altair for monitoring production process, and thus it has been taken as the basic platform for Industry 4.0 covering aspects of IOT, control room, etc.



Technically, the quality lab of ALTAIR Chimica utilises an internal Laboratory Information Management System (LIMS) through which the analytical results are managed. Connectors for the data integration of the quality lab analysis and measures have been realised via Snap4City visual programming. Every few minutes the system acquires the data related to the analyses and the corresponding single measurements by accessing the LIMS. The notification management process automatically send decisions to be taken and related choices leaving the space for negotiation. Notifications are sent through Telegram bot which is also used to collect decisions and feedbacks. For the lab operator the notifications activities are accessible via a web interface, allowing the manager to check the evolution of the single notification over time, and thus implement the decisions.

**SMART  
NOTIFICATION  
ENGINE  
ENABLED  
TECHNOLOGY  
VIA  
SNAP4CITY  
PLATFORM**

The screenshot displays the 'Gestore Notifiche Laboratorio - GeNotiLab' web application. The main panel shows a list of analyses for 'KCLRESINE' and 'V04HCLL'. A Telegram bot notification overlay is visible on the left, showing messages from 'altairlabbot' regarding analysis results and status updates. The interface includes a search bar, a table of analysis results, and a sidebar with navigation options.

Misura	Descrizione	Unità	Valore	Minimo	Massimo
ALPB	Alluminio come Al	ppb	0.00	0.0	100.0
BAPB	Bario come Ba	ppb	39.69	0.0	100.0
CAPB	Calcio come Ca	ppb	331.01	0.0	10.0
CL03	Clorati come ClO3-	ppm	0.0	0.0	10000.0
CRPB	Cromo come Cr	ppb	55.89	0.0	100.0
CUPB	Rame come Cu	ppb	20.63	0.0	100.0
FEPB	Ferro come Fe	ppb	1.99	0.0	100.0
KCLGL	Cloruri come KCl	g/L	280.0	320.0	
MGPB	Magnesio come Mg	ppb	20.24	0.0	10.0
MNPB	Manganese come Mn	ppb	1.00	0.0	100.0
NIPB	Nichel come Ni	ppb	25.15	0.0	100.0
PH	pH	pH unit	8.0	10.0	
SO4	Solfati come SO42-	ppm	0.0	10000.0	
SRPB	Stronzio come Sr	ppb	63.76	0.0	10.0

## The role of Snap4City

The development of the notification system for ALTAIR Chimica has been performed in the context of the E.N.T.E.R.P.R.I.S.E POR-FESR action co-funded by the Tuscany Region.

Other examples and connected scenarios:

- Snap4Industry Slides: <https://www.snap4city.org/369>
- Custom Synoptics and Dashboards: <https://www.snap4city.org/504>
- What-If analysis dashboard online help: <https://www.snap4city.org/521>
- Data Analytics developed by using Snap4City solutions and tools: <https://www.snap4city.org/524>
- Snap4Industry, in Italian: <https://www.snap4city.org/367>

**Extended version accessible from:** <https://www.snap4city.org/815>

**Contact:** <https://www.snap4city.org>

**Partners:** SNAP4, ALTAIR Chimica

