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GLOBAL BUSINESS DEVELOPMENT MANAGER AT MINSAIT

“Oblysis technology seeks to optimize the processes associated with treatment through efficiency improvements”

Oblysis, by Minsait, is a disruptive technology designed to optimise the operational efficiency of wastewater treatment plants, focusing on three main areas: energy consumption, sludge production and reagent consumption.

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Digitalisation is driving change in water management, becoming increasingly essential in all processes. Wastewater treatment is no exception: multiple physical, chemical and biological processes make even more evident the need for digital solutions to facilitate operational efficiency, while ensuring the continuity of services and achieving effluent water quality objectives. We interview Liliana Velasco, Global Business Development Manager at Minsait – the leading IT and digital transformation consulting firm in Spain and Latin America – on her view on digital transformation trends in the water industry, and the opportunities that their Oblysis solution offers for wastewater treatment facilities.

Can you tell us about your career path and how you ended up working in the water sector?

It is nice to reflect on how I ended up working in the water sector, as it allows me to go back and remember that I have always been passionate about the world of engineering. Since childhood, I had the opportunity to visit large industrial plants in Colombia and see how incredible it was to turn the raw material of a sugar mill into candy, in a factory

that you did not want to leave until your pockets were full of candy samples; or to see how the beautiful books that you took to school were the result of the work of many production lines transforming paper thanks to great engineers and industrial mechanics.

I, therefore, chose to study industrial engineering at the Javeriana University in Cali (Colombia), which I later completed with a Master's degree in Integrated Logistics at the Comillas Pontifical University in Madrid. All this allowed me to start a journey in the world of utilities, starting in the area of hydrocarbon distribution in CLH and Accenture, where I also had the opportunity to start my first water projects for Canal de Isabel II, thus entering the field of technological solutions for the utilities sector. This experience opened the door to work at Indra, now Minsait, where I have been able to execute national and international projects in other sectors such as gas and electricity, expanding my functional knowledge in the areas of production, distribution and commercial cycle. During the last 10 years of my career I had the opportunity to specialise in water, the most valuable resource available to human beings.

Within Minsait, the Phyigital Unit has been created as a pathway to the future: we are strengthening our company's capacity to integrate the physical and digital worlds. And currently, I am responsible for putting the evolution of technology at the service of the water sector, as well as identifying the real needs of the market to contribute to and guide technological development in line with current needs. An exciting challenge!

What trends do you see in the digital transformation processes in the water sector?

Technological evolution trends in the water sector to meet new challenges are very diverse: from intelligent and automated management of sensors deployed in the field, promoting data homogenisation and management, to automation of

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processes through a "virtual workforce", a digital transformation trend that is revolutionizing both back office and front office activities.

Digitalisation is a driver of change in the water sector, becoming a fundamental element in all processes, both at the level of control and operation of water infrastructure, as well as commercial management and associated corporate processes: financial, HR, purchasing, among others.

In a context where operational efficiency is a must, demanding the reduction of operating costs while always guaranteeing the continuity of service, water

quality and discharges, at Minsait we promote the development of solutions aimed at guaranteeing the operation of water utilities, generating an impact on both the business and society. All of this in a global scenario where climate change is a fact and fighting water scarcity is a reality, with continuous population growth and increasingly strict environmental regulations. Due to all of these reasons, the sector is inevitably forced to integrate disruptive technologies in its management without delay.

In the last two years, within the Phygital unit, we have focused on consolidating specific solutions for integrated water

cycle management, while promoting the implementation of these technologies with new service models that facilitate water companies' access to these technologies without increasing their investments.

However, implementing disruptive solutions in the sector is also a challenge, since there are factors that do not favour the rapid implementation of new technologies on an industrial scale, such as the human factor – due to a resistance to change the way operations are done or to face new challenges – or other factors such as the contract models imposed by the public sector. New, more dynamic relationship models are required to reduce



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cycle through improvements in the efficiency of energy consumption, sludge production, reagent consumption and improvements in operating parameters.

The savings in energy consumption are mainly determined by the optimisation of the aeration cycles and the amount of air supply in the biological treatment processes, which results in reduced power consumption by the equipment.

Oblysis technology is based on restructuring conventional activated sludge into granular sludge, which contributes to reducing the amount of dry matter produced and, consequently, the costs associated with its treatment, transport and disposal.

In terms of operability, Oblysis contributes to a more stable process when there is variability in the organic load of the influent, and improves the values of the main parameters in the treatment process.

What resources and timeframes are necessary for the implementation of Oblysis in a wastewater treatment plant? Can it be implemented in any type of plant?

Oblysis implementation projects are carried out in several phases. Initially, a preliminary analysis is carried out to determine the technical and economic feasibility of installing Oblysis in a given plant based on historical operating data

and technical information. This analysis is performed in one or two weeks after the data needed is available.

After validating the feasibility of the business model, we proceed to agree with the client on the relationship model to be established throughout the duration of the project, including the shared savings model based on the reduction of operating costs associated with energy consumption, sludge production and reagent consumption.

In terms of the installation of Oblysis devices, it requires between one and two days with the support of plant operators. This installation is very simple as it does not require any changes to the plant infrastructure. During the following days, the correct operation of the equipment is monitored, so it can be calibrated and put into service according to the objectives set.

From a technical point of view, Oblysis can be implemented in activated

the time needed to launch innovative initiatives, which is why we see a need for "traveling companions" to promote the implementation of non-traditional technologies in real environments. We are currently counting on great allies such as Gestagua in Spain to promote initiatives, where we implement pilots that we then take to a productive environment.

What does the Oblysis solution for wastewater treatment plants provide in terms of process optimisation, performance and reduction of operating costs? Oblysis technology seeks to optimize the processes associated with the treatment

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sludge plants or oxidation ponds, with no limits in terms of the plant's capacity. From an economic perspective, where the operating costs of each plant must be taken into account, currently the plants that present a viable business model have a capacity of at least 75,000 population equivalent.

In Oblysis implementation projects, in addition to economic savings, it is also possible to establish objectives for improving effluent quality parameters or increasing treatment capacity; in those cases, the population equivalent is not taken into account.

How does Oblysis differ from other digital solutions on the market to optimise wastewater treatment plant operations?

Oblysis is a disruptive technology on the market; its operation is based on the transformation of activated sludge into granular sludge, favouring the removal of organic matter, nitrogen and phosphorus in more compact and efficient systems than conventional activated sludge systems.

Granular sludge technologies developed so far are almost exclusively based on sequential feed plants (Granular Sequencing Batch Reactor - GSBP), requiring huge structural modifications in the existing plant in order to be implemented. However, Oblysis is based on a continuous flow process simpler in terms of construction, easy to adapt to existing systems, and with lower requirements in terms of process control and automation.

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Based on the principle of granular sludge, Oblysis technology creates the optimal conditions to change the sludge aggregation mode from flocules to granules, thus leading to a more stable and efficient wastewater treatment process.

Oblysis technology is a self-regulating system, which analyses the sludge aggregation code and adapts to it:

- ★ Ensures effluent quality;
- ★ Increases capacity and improves overall plant performance;
- ★ Reduced operating costs: energy, sludge and reagents.

Compared to conventional activated sludge systems, granular sludge-based technology can achieve energy savings of up to 30%, and operating and investment costs can be reduced by up to 85% and 80%, respectively.

The efficiency of Oblysis in the removal processes is very high, providing the following values for the main treatment parameters:

- ★ Removal of dissolved organic carbon (DOC) fraction > 90% -95%;
- ★ Removal of ammonium fraction > 95%;
- ★ Removal of nitrogen fraction > 80% -90%;
- ★ Removal of phosphorus fraction > 90%;
- ★ Increased phosphorus removal to the highest regulatory levels with a significant decrease in precipitation reagents used, if necessary.

Can you comment on the possibilities of integrating Oblysis with other digital tools?

Oblysis is a technology that is already integrated with other digital tools, as it is framed within our Sustainability Solutions developed by Phygital, where three main objectives are pursued:

Improve the efficiency, profitability and flexibility of operations related to all types of assets, products and physical infrastructure.

Transform the interaction of people with the physical world, linking real and virtual information.



Contribute to sustainability objectives concerning the multiple aspects of carbon footprint reduction, circular economy and social impact.

Oblysis projects are operated and managed through our Onesait Platform, a complete suite of solutions focused on responding to new challenges and opportunities, combining multiple technological tools such as Machine Learning



(ML), Artificial Intelligence (AI) and automation solutions, integrated with market-specific technologies to reduce costs in the wastewater treatment process.

What are Minsait's next steps to market Oblysis internationally?

Oblysis technology is currently implemented in three countries in Europe: Spain, Italy and Portugal, with successful

projects that will surely allow us to continue growing in these geographies. But our goal is to take our technology around the world through our subsidiaries, who are already working with our customers, mainly in Latin American countries such as Colombia, Ecuador, Chile, Costa Rica and Argentina, among others.

But it is also true that working with such an innovative technology is opening

doors to markets where a few years ago it seemed impossible to work in the water sector, such as the United States, France, Japan or the Czech Republic.

Internationalisation is an opportunity for us to explore the different issues involved in the implementation of disruptive technology, which in turn allows us to learn and apply the best practices that will lead us to success in a win-win model for all parties.