

FROM THE NIMES AQUEDUCT TO THE SMART CITY



The development of artificial intelligence inevitably allows us to reflect on our human condition.

What characterises humans?

What do we want to preserve?

What do we want to do with our society?

The control of innovation at the service of our needs, not the other way around, must remain a human prerogative. The human and societal values that underpin choices must be preserved at all costs and form the foundations of every democratic system. On the front line, municipalities more than ever have assumed the role of the link between the state and its citizens. How should they organize themselves to be intelligent and sustainable in an increasingly globalized and connected world?

Executive Summary

This paper is indicative that already in Roman times, almost 2000 years ago, the municipalities found smart solutions to improve the everyday life of their citizens. In Nîmes, in the South of France, a challenge at the time was to bring water to the cities.

Today, water is still the most precious commodity and is a pressing sustenance issue. Adapting our cities to best meet the social, economic and sustainability challenges is a global issue. Building an aqueduct might still be a solution in some cases but cities' challenges today are more complex and the range of solutions is quite wide.

BDO has been assisting cities globally for decades with solutions related to complex developmental priorities. We remain committed to embracing the complexities of the modern age to help cities identify the priorities and the best solutions for their development.

We believe that an entrepreneurial vision, a human-centric approach and balance between economics and sustainability are essential. This also requires an agile and robust approach to defining indicators to monitor progress and adapt the initiatives if needed.

In that respect, the UN Sustainable Development Goals (SDGs) and the United for Smart and Sustainable Cities (U4SSC) are examples of valuable frameworks that allow and support benchmarking and exchange of best practices at both national and global level.

A smart and sustainable city in Roman time

In the first century AD, Nîmes had more than 20,000 inhabitants. In order to supply fountains and baths in the city, the authorities decided to build a new aqueduct to exploit the springs of the river Eure, near Uzès.

With only a lens and a plumb line, engineers and workers built a 52km aqueduct, with a total height of only 12.5 meters, representing an average slope of 25 cm/km. With 1 cm/km in addition, the aqueduct would have reached the optimum height two kilometers before Nîmes.

This aqueduct carried more than 35,000 m³ of water per day, or nearly 2 m³ per capita, through the scrubland, spanning the Gardon at 48 meters high by the majestic Pont du Gard. Its construction mobilized more than 1,000 people for 15 years and has been used for five centuries.

With so little difference, how could one know that the altitude of Nîmes was lower than the altitude of Uzès? How could we know this difference in altitude with sufficient precision to deduce the slope of the canal and therefore the line to follow on the ground? The altimeter was invented in the 19th century. Today, without satellites to allow the operation of a GPS system, no one would be able to achieve such a feat.

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