



OPINION ARTICLE
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A HOLISTIC VISION OF SMART CITIES

Cities are getting bigger and bigger at a fast pace. With the increasingly growth of urban populations the pressure over cities increases, not only at an infrastructure level but also the human and psychological level. Managing the growth of basic infrastructures is a complex and often reactive problem. A new way to approach the subject is needed.

Take a company as an example, with its structured processes and systems monitoring the pulse of the business, giving management indicators to make decisions.

The enterprise operating systems give employees information to correct and optimize their processes. Thus, the entire system infrastructure of a company collaborates to optimize its competitiveness and its growth. Why can not a city be like this? This is where a Smart City conceptualization comes in, which should be a set of systems and technologies whose objectives are to optimize resources to cities and support its growth.

The focus must be on results rather than on technologies but be aware that the technological choice is paramount to deliver results.

So, what is the key to getting the results? The answer is simple with a complex execution though. It is important to have a stream of fluent and correct information to have

feedback of the actions to be developed, which permit to act and correct accordingly.

'Information is the key of Smart Cities.'

But it's important to be thorough and picky about the information provenance “where and how the information is retrieved”. Information can come from many places and in various forms. In this context, it is essential to ensure that information is accessible and fluid. This is one of the first requirements for the Smart City systems. And these must be interoperable and “speak” the same language.

One of the major mistakes of many system manufacturers is to take a closed approach. Also called vertical silos. And, usually this option is made (wrongly) to defend their own product and ecosystem. But it is ridiculous, for example, that a municipality has three systems for street lighting, other four for managing the of traffic lights grid, other two for collecting waste, and so on. This type of solution severely limits the development of a Smart City and can compromise the desired results.

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One of the best examples is the Smart City of Cascais, next to Lisbon, in Portugal which was presented at the Consumer Electronics Show, Las Vegas, in 2018.

Cascais today has a single center for city control and management. This center manages the various infrastructures such as street lighting, waste disposal, energy, law enforcement agencies, etc. All in a single space, coordinating and managing the territory, in a smart and integrated way. Examples such as Cascais show how planning a Smart City should take a holistic approach, considering the various systems and, most importantly, making it future proof.

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The best way to guard the future is to choose open solutions that allow to communicate and integrate with existing and future systems.

So, as a conclusion, here's the recipe to build a Smart City:

- 1. Choose open and interoperable systems;**
- 2. A comprehensive, low cost and open communications infrastructure;**
- 3. Start with some vertical systems (eg street lighting) to test the concept;**
- 4. Expand the pilots and add other systems (eg, water infrastructure);**
- 5. Invest in systems of information analysis and to support the decision.**

Then, wait for the results. The community will appreciate, as streets properly lighted up are synonymous of safety. If on top of this we join the savings element, then I must say that this is the way forward!

