

Short Story | *Can Big Data save the Environment?*

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Sunlight gently touched her face, but she only surrendered to the perpetual sound of the waves that covered the entire sight in front of her. Standing in the large White Bridge facing the ocean, she kept wondering, *but how people could have been so ignorant of the consequences?* Escaping from her thoughts for a moment, she gazed back and smiled at the view of the city on the other side. Thankfully, not *everyone* in the past had failed to realize the imminent danger and now she could stand here, attending *this*.

In her mid-twenties Ariane, is already an unusually active and restless person with many plans for the future. Hers and the planet's. In fact, her imagination combined with the creativity and organized brains of her friends, contribute to improve other people's lives using smart digital technology. In a world where the *power of collective ideas* overcomes the human self-interest. This time, there was going to be an *even bigger target*, she thinks and scans impatiently the relatively busy road for any sign of the others. *That's strange for them to be late*, she thinks.

She decides to walk alongside the semicircular, three-hundred-feet-above-the-sea arch, following the pedestrian's pathway towards the city. A colorful current of electric cars, (made of nearly non-bendable Nano-materials) moves swiftly in the opposite direction and thanks to the innovations of her neighboring laboratory in the last 10 years, you could see some morning traffic but the soothing marine breeze was the only thing you could hear. It seemed strange to her, that people in the past used what she called, "angry and hungry" cars, to move around in wheels only. Now, evolving from the noisy claxons and exhaustions to speedy and quiet carriers, had definitely been quite an achievement for the departments of *Smart Transportations Association* around the world. Hermes, one of her best friends, was so proud in last week's Global Innovation Exposition to present an updated version of the internal navigation system for the eco-friendly, levitating cars: "*This platform installed in the smart cars is collecting data via sensors giving them the opportunity to automatically optimizing their routes*", he had said in pride and Ariane was looking forward to see that in real. He had promised to let her be present today in the tests for the navigation abilities of these cars in water. So *what is taking him so long?*

Upon reaching the city center, she looked towards the recurrent bridge-arch motif that successfully decongests the main driving lanes at this time of day. Hanging plants on the downside of every bridge dome, along every house balcony and terrace, several parks with trees

and grass, embracing every possible corner of the city that is not occupied by human activity. *How many numbers are "hiding" inside nature in the end?*, she wondered. It was an idea evolved even more, when her laboratory developed an integrated city plant system. A really practical method that for many years could not be implemented. In every unexploited area, different plants, trees and even fruits and vegetables were planted, with a smart system of microchips and sensors, monitoring their progress and their need of water or fertilizers. A significant breakthrough in agriculture as well, that was included in the future design of the city that would encompass agricultural zones in the urban landscape. She had also a part to play on that, since she had been recently involved in the data processing. Little "smart green" efforts to relieve the system of some burden. To assist in a better adaptation of the changing conditions. But it seems is not enough. It is not enough, even though CO2 emissions ceased completely around 2050, when the digital revolution took place. The digital world could offer a solution to all this mess. Yes, it could give a chance to this world! The Big Data analysis implemented in every aspect of cities organization, aims to optimize not only the CO2 emissions but also to facilitate the daily routine of people. And she and her team, are going to do their best to make sure that things will change!

A small little dot in the sky caught her attention, as it was approaching her with speed. A smile in her face greeted a somewhat muscular boy with bronze skin and chiseled features. He made a jump and yelled, before landing in front of her, evidently excited, shutting down his red thruster costume.

-Oh, I know this look, he laughed and removed his uniform, placing it on the nearest thruster installation station. A click was heard and then a typing on the holographic screen terminated the use of the uniform. The white column opened its doors and recovered the item inside. He was taller than her, two years older, yet somehow his 18-year-old-like face had an air of determination that calmed her down. He recognized the *I-knew-I-would-find-you-here* look on her and quickly analyzed the situation. *Are the others here?*

-They should have been by now, she replied in concern and he shuffled her hair reassuring her back:

-I am pretty sure they must have stuck somewhere in the Digital Tower. Isn't today that recap meeting for the Ocean project? Indeed it was.

-Thalis, Hermes was supposed to meet me an hour ago for the new levitating platform tests and Athena is not responding to my calls on the intercom. The wristwatch screen on her left hand became bigger on a single touch and the interface called Athena upon Ariane's command. A voice came back, *"Tricked yaaaa...Not here at the moment, leave a message"*. Talis wondered for a second, he too knew that as head of Smart Urban Sustainability and Climate department, Athena always kept her colleagues informed of her whereabouts, in case of plan changes, especially now with the recent events that kept everybody on alert. In his head he seemed to rationalize the possibilities and spoke on a steady tone:

- Let's have a walk to the Digital Tower, shall we? Something tells me that Hermes got swamped with brainstorming discussions again and he forgot the meeting. And I know for sure Athena was there also this morning. I will leave a message on their intercom letting them know we are coming there.

She agreed reluctantly, but she wouldn't mind a little walk on the streets of the city. After all, she was part of the team responsible for Smart Urban Design Improvements and it was a good chance to observe what it was done so far and needed to be done next. This was always a better way to discover new ideas, by observing people's lives and needs in real time, than developing them only in the laboratory supercomputers.

Following straight the White Bridge avenue into the center, there were some families enjoying a typical sunny Saturday on the nearby lakes scattered inside the parks, with little kids running around the newly adjusted playgrounds. *The Children's Care team had done a wonderful job this time*, she thought. They kept the traditional games of the playground on top of digital floors, where the kids could learn interactively about the natural environment they are in contact with. Their parents were enjoying the day doing their favorite activities without concerning about their children safety. Small, subtle, invisible bracelets that circulate in their hands. Someone could think that this is a scary innovation, but this has really improved the quality of life here. Less stress and more safety, is the new reality. She smiled and moved on.

Only when the elevated tube-like public vehicles, named Tesla, crossed the sky, the children would get their look away from playing with the earth and scream with enthusiasm. These small but long and fast machines looked, indeed, like moving worms that can meander, just like the real worms on nature, only that they elevate using renewable energy. There are certain stations for passenger embarkations on them and through their glass wall an incredible view outside is allowed. Once flying vehicles were out in the production line, there was an initial fear that the sky would be swamped with them, hiding the sun, the most important element for living harmoniously on a bioclimatic city. Soon enough, accelerated public transports on the skies, smart rollers upon moving pavements and fast electric cars etc.. reduced the time needed to cover distances and the people's perception started to change towards maintaining a balance on their use of them, understanding that solar energy is vital in this new order of things. Therefore, certain restrictions were applied concerning the number of vehicles allowed on the sky of every city. It was the start of an era where everybody had access on every contemporary form of transport and it became so common, that people gradually turned into walking and smart bikes under the sun for their every day necessities. *Maybe the flying platforms in the water will revolutionize the transportation even further*, Ariane thought to herself as she too, was watching the Tesla passing by.

The driveways of the city are connected and circulating in thin tortuous interchanges and roads-arches, that are elevated without shadowing the local streets for the pedestrians on the ground. Always communicating with the ground levels, they are surrounded most of the time with patches of green plants and grass that complement the characteristic, contemporary white design of every transportation supporting structure.

Balance between human and natural ecosystem, was one of the key ideas based on which, the first teams of architects and engineers constructed the re-formations on this city, 30 years ago. The city, has been divided into autonomous energy compartments using the smart energy grid distribution. In fact, the adjacent households are sharing renewable energy while there is a central storage of the wind and solar energy. A central system in the city accumulate all the relevant data of every smart neighborhood and either use them to provide more energy according to their needs or to control and improve the usage of energy. All of the Young Departments responsible for this city now, had inherited these ideas, aiming to improve them even further in the future. Of course, it was not easy in the beginning for the people to adjust to that new reality, but this is where the role of young entrepreneurs became even more important.

-Good morning to you too Mr. Andrews, Thalís waved back on their favorite baker at the corner of White Bridge avenue and Flower's Street. The odeur from the fresh pastries made both of them crave a bite or two from these plummy chocolate *brioche*. But they continued their road, turning left this time. The landscape changed, while they were approaching at the heart of the city.

Tall, silver and white buildings with futuristic shapes, were scattered alongside the main river that traversed the city. At its left banks, several parks host the usual flea markets with biological products of the region as well as the traditional meeting point for people that want to enjoy fishing, painting and several other creative activities next to the clean river waters, under the relaxing shadow of the trees.

On the right bank however, a block of round or curving flats with circular balconies that gives you the sense that are not supported anywhere, and sometimes communicate with each other by thin air-corridors, are raised, presenting the most modern form of human inhabitant. Every building is baring thermal facades that absorb energy for the smart neighborhoods. At the top of each group of flats there is either a photovoltaic facility or a mini greenhouse garden, where people can cultivate their own products for consumption contributing thus to the "green effort" as they call it and using the sensors in order to efficiently maintain them, even from distance.

-Do you think that something strange is happening in the DIGITAL Tower? Ariane, asked as she fixed her eyes upon it. Thalís was preoccupied with the goodies on the market they were walking into and had not notice the slightly different light in the heart of the Tower.

The main river current continued and ended up on a round, plateau, where a tall breath-taking, tree-like skyscraper was installed in the middle of it. The Digital Tower. The "hard drive" of the city, where decisions are made, where a digital bioclimatic control over the area is developed, organized and improved. Where data and information goes through and analyzed from all the RFIDs, sensors, Internet sources and servers before and after any implementation.

As Thalís turned around and looked upon it, his face wrinkled suddenly and he added:

-Ariane, I think we need to go up, immediately, and speeded up his pace.

Ten levels of artificial branches connected to the main trunk, just like in real trees, house thirty little farms each, to clean the air of the city, in addition to providing food for it. Each of them has its own light and heating system and is based on hydroponic cultivation that does not require soil. The main trunk hosts among other things, the Command Hall, where teams of experts are regulating and organize the information for the welfare of the smart bioclimatic society. A large root area provides stability for the structure as well as several entrances to the facility. As they approached the area they noticed a slight upheaval on the inside, before the guard blocked their entrance.

-Identities please, he ordered with a serious voice.

-What is going on inside? Ariane asked, as she watched people running up and down the first floor, while a worried Thalís hustled to show his credentials, asking silently with his hand Ariane's ID. It was very few times she had visited the Digital Tower, since her office was somewhere on the other side of the city, but she could understand that something was going on.

-Sorry sir, I did not realize it was you, too much pressure today, apologized the guard when he realized it was the Head of the Smart Environment Department, he was talking to. *There seems*

to be a communication problem miss, I am sure they will figure it out, he replied to Ariane and gave her back her ID. Thalís seemed to pay no attention to him and he rushed inside the building, grasping the first person he could find, followed by an astonished Ariane that always felt awe when she entered this building. Thalís had already advanced in front of her.

-They are already at the Command Hall sir, Ariane heard the secretary saying to Thalís. *I've been told that they were trying to reach you for a long time but for some reasons the internal communications are.... out of order today.*

Thalís, did not stay until she finished her sentence and grabbed Ariane on the first elevator for the 10th floor. When the doors of the elevator opened, several people no more than 30 years old, with identities and papers on their hands seemed to rush in and out of the Command Hall. Opposite the elevator the large, silver door with the mark of the planet upon it, opened upon Thalís' identity check on the right. All Heads of the Departments were gathered around the table, some of them looking anxiously at the holographic screens around the room. The glass windows that normally supervise the city from above, had turned into computer screen of images around an island. All the young faces turned around towards them when they entered and for a moment there was silence.

-It is as we feared Thalís, a boy in his twenties with a blue jacket and his glasses upon the table, broke the silence impatiently. *We are undergoing a hacker attack from him again. And this time is worse. We are unable to control our systems.*

-And Athena is missing, added a curly-hair girl that Ariane had never seen before. Where have you been? We have ordered an emergency assembly for the Head of all the Departments two hours ago, she continued agitated. Ariane felt an inch of worry coming on hearing Athena's name. She knew it. She had felt something was not right this morning.

-Communications are out Iris, he could not have read the message, a boy that looked younger than everybody else around here, answered her.

-It's alright Athos, Thalís replied with a soft voice. *Everybody, what is the situation now? Do we suspect malware in our communications by him as well?* Tiphaine, did not lose time at this point:

-He has threatened us before to release the citizens' personal information, private and secret governmental documents, but the worst thing is that he wants to destroy every smart innovation concerning the environment.

- As if he did not have everything he always wanted in that island. Wealth, food, money... Athos murmured with anger.

- Thalís, he wants to restore the world to its "former glory", he is funded by the old companies that want their money back. The money they lost when the coal consumption stopped. But they are still out there trying to undermine our efforts. I'm told for several months now that the Young Ministry of Internal Affairs in Australia, has had pressure from old people. Old people that claim that youngsters cannot rule the society properly and they need to bring the power back to the hands of the "mature adults". He is pushing them somehow against us. Ariadne stopped talking and looked around everybody else in the room.

Apollon, clenched his fist and hit the table:

- *Then we should not let him make it. Let's do it like last time. Lets organize ourselves and call once again all the free Young people around the world. Let's unite them once again against them. Let's remind them where the world was before we took over, where we still are because of their fatal choices.*

-*Apollon, the world is not only comprised by young people that dream of a better world. Wealthy descendants of the corrupted governments that were exiled in this island had always been trying to take power back from us. They had always been dreaming of retrieving their former glory because they are feed by it. By the greed for power and money. We must not make it easier for him now...We cannot let him have control of everything from his own computer systems. This, is our first priority everyone. And then we need to raise emergency contact with the other Digital Towers in the world. Right now!*, he said and everybody started typing vigorously in their keyboards.

Scary stories from the past where people lived on polluted atmospheres and oceans, dirty rivers and lakes, cities with garbage and unhealthy food, roads with noisy and polluting cars, started emerging in Ariane's mind while she was listening to the conversation. *But why they want to go back to that? They had tried so much to bring stability to the planet.* The Young Rebellion on 2020 lasted many years but in the end they managed to take over power from the lunatic that was determined to doom the planet. Or so she had read at a book about that. Over the years, signs of surface temperature reduction had become to emerge, after the uncontrolled increase on the planet due to human CO2 emission. They were still trying to end it until now, once and for all with the idea they were recently processing. The *big target*. The sea level rise had been gradually reduced and they had already saved many coastal regions around the world that were endangered due to this, after all these years of effort. Even the Arctic glaciers had started to show signs of recovery. *And look at the cities they are living in now.* Modern and beautiful, and for everybody, not like these dirty holes with stressed people and low quality of life. Renewable energies, wind turbines and turbines on the sea have made our societies independent and eco-friendly and at the same time had brought profit and many new jobs for the people. This cannot be undone. *We cannot let him erase all the information and stop the progress that we have already done*, Ariane thought in anger.

-*If he gets access to the main supercomputer from any kind of machine...He can use all the data against us, he can control every aspect of our lives, just by manipulating the "Internet of Things".I was told that he has people in his side this time, that know what to do. And just like that our efforts for the Utopia can be transformed in Dystopia.* Everyone had stopped what they were doing, looking at each other in fear, while Athos spoke these words.

-*Then we go out and outsmart them once again*, Ariane stepped on a clear voice. The younger integrated researcher that had just entered this world of people with vision stand out to give hope. *"Show them that we are even more creative and smart and determined to save our planet once again. Invite the Free Young People of the world, talk them in public. Inform them about the situation. Remind them what the cities was BEFORE we took charge over them. Let them know that they need to be on the lookout for any sign of these people that want to bring us back to the instability"*.

Everybody felt an inch of adrenaline and they looked at each other determined.

-*Alright people, lets get organized, let's work the problem*, Thalís spoke and pushed the button...It was time for the great summoning.