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We cannot design an architectural or urban project without combining it with ecological awareness.

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BNP Paribas Personal Finance invites you to discover *On The Way*, the podcast that explores the paths to responsible consumption. Whether entrepreneurs, people from the world of business and researchers, *On The Way* gives a voice to those who, day after day, are helping to develop more sustainable consumption. Welcome! Enjoy the podcast!

00:37

My name is Clémence Bechu, I'm Director of Development & Innovation at *Bechu + Associés*, an architecture, urbanism and interior design firm with a particular focus on the ecological transition.

Today, I'm a mother first and foremost. This is significant, because everything I pursue, I pursue with the lives of my children in mind. I want them to have a great life, a great life in a healthy town that makes them happy.

I am the daughter, grand-daughter and great-grand-daughter of an architect. Today, I represent the fourth generation and the first generation of women. I'm not an architect myself, I studied at business school. Firstly at Dauphine University in Paris and then ESCP Business School. Then I started again from scratch and went on to discover the amazing world of economics, about which I knew nothing, but which it is so vital to understand to know how to live in our capitalist society to successfully use the economy as a lever to develop responses to the environmental challenge we face today.

1:50

As a student, I had the opportunity to live in Beijing in China for two years between 2003–2005 at a time when the city was starting to undergo its urban transformation.

I already knew I had a particular affinity for cities and their development, because I spent a lot of time jumping over building site barriers and even going straight onto building sites as often there weren't any barriers, to understand how this low-level town was becoming denser with absolutely fantastic tall buildings, buildings and reconstructions which were directly related to the societal development of the town and its country.

So I became aware of the extremely close correlation between the development of a city and the development in society.

2:51

I joined the firm eight years ago now, after my first two professional experiences.

The first was with Capgemini Consulting in the world of strategic consulting in the banking and insurance sector. It was a formative experience which allowed me to experience how an organisation which is part of a larger group functions. As a consultant I was introduced to different businesses and business cultures. I met a variety of stakeholders, with whom I had the opportunity to talk and work after implementing a strategy, to develop the whole change management process, which is key in the world of business. In fact, at the time I was already enjoying this concept of working with clients on change management.

3:40

I'll come back to this, but it is something I do in my life today, in my life at the firm. After this great formative experience, I was lucky enough to meet my future, very entrepreneurial, husband.

And me, I had the entrepreneurial spirit myself, undoubtedly linked to my family because an architect is an entrepreneur above all. And I had, for a long time, wanted to set up my own company, my start-up and to be successful in developing an idea for a business that worked.

4:13

My husband has always been passionate about wine and one day, he came up from his wine cellar saying, "Clémence, I can't do this anymore. I can't store my wine in my own cellar because all my friends who don't have a wine cellar, or don't have a good wine cellar have entrusted me with their wine."

4:27

In fact, what was needed was to set up a company that stored other people's wine. And I looked at him, I was between two jobs and I said to him, "You know, your idea is brilliant! It can be explained in a single sentence."

I'd always been told that if you could explain a business idea in one sentence, then it was a good idea. There would definitely be a market for it.

4:46

Within two days, we thought about it and both of us resigned from our jobs. It was 2008, the end of 2008, to set up a business that continues today and that my husband continues to manage. I admire him for all that he does. It's called WineSitting.

5:06

I'd just had my first child, Auguste, and I was thinking about what I wanted to go on to do. My sister came to me. She is an interior architect and designer, who has worked at the firm since she finished studying.

5:22

And she said to me, "Listen Clém, you know the firm really well, you've worked with Dad for a long time on project design, getting his ideas down on paper, and moving projects forward. Dad is thinking about the future but isn't sure which way to take things. Come and work with us, to work right across the agency and contribute your expertise."

5:51

After a family Sunday lunch, I asked my father if I could have a chat with him and we had a very long cup of coffee. And he said to me, "What do you want to say to me?", and I asked him this question, "Dad, how do you see the firm in ten years time?", and he replied, "If you're asking me that, you're ready to come and listen to me and help me answer."

6:14

In fact, this answer didn't come from nowhere. When I was 22 years old, my father said, "Come and work at the firm."

And, I replied, "But Dad, you haven't thought about it, I'm not an architect. I have no idea what I can do for you. Let me do what I want and then we'll see what I can bring to the table."

6:34

And so we had the conversation again in December 2013 and I joined the firm in January 2014, with the title of Director of Development, but with a blank page to fill, as there was so much to do.

I did two things straight away. Firstly, I worked to reveal what the firm was about, to reveal our DNA, a family DNA which is long lasting by definition. Sustainability is in our DNA alongside a unique architectural approach you don't see in all firms and which is extremely contextual.

7:17

We explain to our teams and ensure that each project is sustainable because it respects the roots of the place where it is built, because by respecting the environmental context there is a kind of humility which means that a project exists and does good, actually allowing the people using it to feel good, because it is created according to its context.

So, the first thing, reveal the DNA of the agency, explain why we have such diverse projects.

7:52

We have new projects, renovation projects and rebuilds, which include offices, housing, hotels, schools, and sports facilities. And always with this same sense of respect, humility, alongside a respect and awareness for the future user.

8:16

The second thing was to focus on the long term, to work out which firms would still be around in the future and which firms people will want to work with. I was already convinced in January 2014 that it was vital that the firm showed a strong commitment to the climate and environmental challenge.

8:47

Looking back, I was always interested in the environment, first during my childhood, because I was brought up by parents, but also by my grandparents who made us look at nature in all its parts, when out walking, or simply through reflection.

9:08

My grandfather wrote a lot and he wrote extensively about nature as well.

For my dissertation at the end of my studies at Dauphine University, I wrote about fair trade labels which were just beginning to emerge. So that scientific side to me had already led me to the conviction I still have today, which is that the ecological world cannot be designed without the world of science, as this holds the keys and solutions we need to take things forward.

9:34

In fact, what has happened over the last few years, is that the logic of industrialisation and development has turned us away from the knowledge and common sense of yesteryear. But we can revisit these today because technology allows us to take this ancient knowledge even further.

9:55

I joined the firm eight years ago and I work in the area of urban development and property. And I must say that over that time, awareness around the environmental challenge has come on a lot.

In 2014, when I would discuss the environment and respect for nature, when I was working on my first biomimetic projects, people would respond favourably. But the environmental strategy was a little like the final piece of the package being sold, a bit like a cherry that has to be perched on top of a cake, to tick all the boxes.

10:37

Today, environmental strategy is an integral part of design. We cannot design an architectural or urban project without combining it with ecological awareness.

I would even say, we are trying to take things even further with the projects we're undertaking with climate scientists who I met through COP21. It was in 2016, quite soon after I'd started at the agency.

11:04

Something clicked for me.

It was that architecture and cities cannot be designed without integrating climate data into our work.

The climate is the cornerstone of a city. In 2050, according to UN data, 70% of the population will be urban, with cities that occupy 3% of the surface of the planet. Cities are both responsible for climate change through anthropogenic phenomena like greenhouse gas emissions etc., and, at the same time, victims of it, with known direct effects like urban heat islands, pollution, flooding, all the natural risks, fires as well, and indirect risks that we know all too well, like the health pandemic.

12:00

I hope we'll come out the other side of this, but it needs to be understood that there will be others, alongside all the social unrest related to the climate. So, with the changing climate, cities have not adapted, whereas nature knows how to.

There has always been climate change. Since the world began, there has always been climate change.

12:27

Nature is 3.8 billion years old, it has always known how to adapt itself. Right now, for example, there is a European species of snail whose shell has changed colour. It has gone from brown to a lighter yellow. Why?

To adapt to the temperature increase and so absorb less heat.

12:49

There are birds in cities which have changed the sound of their song, unfortunately, to adapt to sound pollution. There are red squirrels too which have changed their reproductive calendar, again, to adapt to climate change and procreate as they need to.

13:19

Our city is unable to adapt to climate change because it was designed in a linear fashion rather than circular and without paying heed to the fact that it needed to leave space for nature and more than this, to integrate itself within the cycles of nature to be able to adjust to all this change.

13:43

This is part of my work too and I try to introduce a biomimetic approach into all our projects to some extent.

It is like drawing on nature for solutions by observing its biological composition, its social organisation, a whole selection of circular processes, its ability to function in symbiosis.

In fact, in nature, living things help each other find the solutions that solve the problems we face, whether we are talking about materials, structures, the water cycle or the energy cycle.

14:40

Bioinspiration and biomimicry can be dealt with in different ways. In general we try to partner and collaborate with scientists, to understand properly what we are looking to imitate and what we are looking to for inspiration.

And so we focus on giving ourselves an objective. For example, I had a project in the South of Moscow in a town called Skolkovo where we had to design a housing development for researchers, as it is home to a competitiveness & innovation incubator.

15:27

We went with the organisational schema of the houses, which had to be circular, as per the town planning we were given.

In Skolkovo, the climate is extremely cold in the winter, as low as -40 degrees and it can also be extremely hot in the summer. There are huge variances in temperature and it can reach up to 80 degrees and so the climatic challenge was mostly energy-related.

How could we manage, in a passive way and without adding technology, to design a project which would economise on energy?

16:08

And the second question was, "In the living world, in nature, what animal population could inspire us to reach this objective?"

By reflecting and observing, we realised that penguins on pack ice arrange themselves in a concentric circle, placing themselves in a way that retains warmth. In fact, they stay warm because this arrangement creates natural islands of warmth so the eldest can protect the youngest and also so any penguins that are unwell are protected too.

16:47

And so we contacted some biology students at a local university. Using intuition, we had drawn up the houses as being set out in this way, but without a scientific argument. So we met with the biologists so they could help us study and understand this natural data which organised nature. Nature is organised through a type of maths, known as fractal maths.

17:18

And so, what was the natural equation that organised this phenomenon?

From the work we did with the biologists, we integrated the collected data into our design software. This is where I say that technology actually enables improvements to common sense by rendering our drawing ingenious.

And the project, the design, then the project was built and backed up scientifically and it proves the efficiency of the process. It is a project of 90 houses organised in clusters of 10 houses, all arranged in relation to each other in such a way as to create a natural urban heat island, so it is warmer in the middle of each group of houses than outside.

18:04

And there was a difference of 5 degrees. So when you are in the middle of each group of houses, it is only -35 degrees, and -40 degrees elsewhere and so less heating was required than in houses where it was -40 degrees.

Another example I can give is where we used bio-inspiration. How to respect the environmental and natural context where I am going to put a building. It is the university campus of the polytechnic Mohammed VI in Laâyoune in Southern Morocco, where we were to build in a desert on which nothing had ever been built and develop living facilities for students.

To design our project, we looked to two strategies. Firstly, respect and use the shapes of the desert, and second, collect all the local climate data in order to be able to produce and build a building, which was passive in terms of energy consumption too.

19:13

And so the design of the building took inspiration from Bedouin tents, concrete tents with huge green roofs using shapes from the desert, with an interior walkway which recalled the nocturnal cracks in the desert which naturally ventilate and cool the building which is 80% passive in terms of energy.

That is to say that when it is very hot in the desert, in fact all year round it is permanently 25 degrees in the building without the need for air conditioning. The interior walkway was designed carefully, in fact we tried to imagine ourselves as a small animal wandering in the cracks of the desert to find a breeze and some cool.

20:02

When I talk about bioinspiration, which is about taking inspiration in a general way from nature, without engaging in scientific work for a truly biomimetic approach, it is also working to create architecture that is as close as possible to nature and managing to integrate nature as much as possible. This is something we have a great need for in our cities, because nature helps us and because we need to help nature.

This is an approach to health advocated by the WHO which is now integrated into the urban planning regulations we respond to.

Urban homo sapiens cannot continue to live without paying any attention to nature, because if they turn away from it too much, well, their survival depends on it.

So, respect for nature is achieved by integrating nature and the landscape into the composition of our buildings and if possible by helping it.

So I can integrate nature by putting together facade materials with interstices, little holes that plants can grow in, also little bees can enter and little birds, and at ground level, all types of frogs. All the biodiversity in the city that we don't really see, but that is there and that we need.

21:29

My work obviously involves balconies and loggias, which are also spaces nature can access. I try to allow nature to expand, from the ground floor right up to the top of the building, by embedding nature onto the rooftops and terraces which are often shared, because nature has an ornamental role too which helps. But the landscape can also have an active role.

And it has this active role because it provides social links, exchanges, because the landscape can be productive. I talk a lot about urban agriculture, about allotments and lots of tests have been carried out. There are economic models being worked out at the moment.

22:17

This isn't all marketing, it is a serious subject because to go back to what I was saying, in 2050, 70% of the population will be urban, which also means that 70% of food will be eaten in cities.

22:32

In Europe, this figure is 85%. This shows the challenge for farm-cities because food produced elsewhere means logistics, transport and carbon footprints. These are not good things, so cities must equip themselves with active landscapes which produce food.

22:54

The climatic side is the other active dimension to the landscape. Nature and the landscape help create coolness within cities during the heatwaves and extreme temperature peaks which cities will experience, which are becoming more extreme and are often unexpected.

23:23

Taking climatic challenges into account has already initiated new ways of living on several levels. I talk a lot about the famous "15-minute city". This isn't just talk, in fact the 15-minute city is needed because I see the extremes towards which we are moving to live in one place, work three hours from home, sit in traffic, travel, etc. All of this is stressful and has a big carbon footprint which makes people unhappy and which doesn't facilitate good health. And the main role of cities is to promote good health, nature's health and the health of urban dwellers.

And this health isn't just physical, it is physiological, psychological, and social.

24:15

And so, in fact I talk about "healths" in the plural and because of that, stress must be reduced, social links increased and general well-being facilitated.

The term 'well-being' denotes health as the continuous actioning of things that are put in place to aid our well-being and health.

25:54

And so the 15-minute city can help you live your life and satisfy your needs within a perimeter of 15 minutes from your point of departure.

So, this means living at home, working, shopping, meeting friends, going to the theatre etc. And so this 15-minute city is brought into being through a mixing and hybridisation of buildings. We've built in silos, just thinking, "I'm going to put some accommodation buildings there, I'm going to put an office building there," with investment logic.

Investors need to change their model to be able to create buildings which integrate both accommodation, office space and a whole ensemble of activities and amenities which will bring the city to life. It is happening. And there are two products that came onto the market a few years ago – co-living and co-working - which have facilitated this hybridisation. A lot of our projects now put co-living alongside office space, and mix coworking with accommodation.

26:10

I think tomorrow's accommodation will have co-working or shared spaces in which you can work, but will also have a local aspect with exercise classes and a range of solutions to make the daily lives of working mothers easier, with, I don't know, smart lockers to receive their deliveries, a space to work so they can be on time for the school pick-up. So, we're working on all that!

26:43

And the second thing that is going to change, that is changing, and is already happening, and which is a link to the climate challenge and the transformation of our ways of living, is the will of people to be able make a choice between the liveliness of the city and the calm of the country town.

Technology makes this possible as one can work remotely. This doesn't mean working at home, working remotely means working somewhere else. So small towns need to equip themselves with 'third places' where you can work near your home, without being at home.

27:20

And this form of alternative way of living facilitated by technology, consists of what?

It consists of saying, "I choose two days a week the liveliness of the city which allows me to go to my office, to meet colleagues, to attend a conference or a training session."

We exist in a learning economy and a learning society where learning is permanently ongoing, and that also contributes to well-being.

"And three days a week, I come back to my country town because I feel good there, because I need a slower pace when I'm there and because I've organised myself by ensuring that all my tasks over those three days can be completed during that time through this other way of living."

28:17

So I think that the way of living with first place/second place, is being transformed towards an alternative way of living. Also, people will no longer necessarily have their own living space in the city. They can go there and stay in a co-living facility near their offices.

28:47

On an individual basis, when you need to carry out some renovations or decorating in your apartment or any number of things, I think each of us needs to take responsibility and use our common sense by choosing a responsible business.



Ecology and environmental awareness aren't a cost but an investment. Today the market is being organised between changing supply and demand, but I don't think you should hesitate, even if it costs 2% more, 3% more to choose a responsible business with which to work, because they will advise you on materials produced locally or innovative materials which have been designed using bioinspiration.

Because their advice will also facilitate reuse, recycling and the support of all things related to the major thermal and energy renovations that are underway already in city buildings that have already been built, to promote a circular economy logic in network energy and water cycle management.

For example, I've talked about the landscape. It is unthinkable to imagine watering your garden with water that has not been collected from rainwater or which, if possible, can be collected by recycling a building's wastewater.

30:30

All these are things we're working on too, and it all is part of operational things that work today and which are part of the offerings of different companies you can reach out to.

And so, there are questions about renovation works, redecoration etc but there is also the daily stuff.

How can I be more responsible every day?

30:53

Obviously, not everything is going to change from one day to the next. I was talking about change management before and we're really into this.

I think every day you can ask yourself, "OK, how can I add to my responsible behaviour?"

There is certainly, as I was saying, choosing businesses which show their green credentials and who are committed.

There is the sorting of rubbish and recycling. There is the saying to yourself about your bread, "I'll go and buy it near my house."

Why not put yourself in the place of an animal by saying, "OK, If I was an beaver for example, how would I behave?"

To continue with this idea, and it is an image that makes me happy, when the otter builds its dam it doesn't go looking for wood 300 km from where it lives.

31:47

He looks around near his home.

By looking at how nature works, we can say to ourselves that this city has become a city of nature and is integrated into the cycles of nature and is a living entity in itself, and we need to think about prioritising it. We need to say to ourselves, "We must take care of it, so that it can take care of us".

32:12

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