Introduction

Sustainable models rely on us breaking with the system that we currently have. We've chosen this video by Idriss Aberkane, neuroergonomist, to show you another way of comprehending our growth, particularly through the knowledge economy and all the issues linked with the ways of transmitting this knowledge. Resources are finite, but knowledge is infinite. Infinite growth can therefore be possible if it is based on knowledge. Enjoy the viewing.

Now let's hand over to Idriss Aberkane, the Ambassador from the Digital Campus of Complex Systems, UNESCO-UniTwin, and research fellow at the University of Stanford.

Idriss Aberkane's presentation

The practical applications are in fact very simple and that's what I'm going to show you today. If you will, the knowledge economy is a spectacular field above all, spectacular because, like stupidity, knowledge is infinite and when you're departing from that point that already changes everything, it changes everything, knowledge is infinite, the whole economy is based on that. Natural resources are finite, knowledge is infinite. If you want infinite growth but with finite natural resources it's not possible, but with knowledge, it's easy. So, we're already there with the knowledge economy. We've already there because there are lots of people who have done this calculation before me. The economy, the infinite growth of resources, finite raw materials, but if we base growth on knowledge, we can have infinite growth.

Jimmy Carter for example, in the 1970s, clearly said: "Listen, if you want us to have infinite growth whilst we're right in the middle of an oil crisis, the dollar must no longer be the currency for oil, for gold, for wheat, but the dollar must be the currency for knowledge." A little while after, this was going to cause the coming of Silicon Valley and would make these words famous, if you will. In 1984, Steve Jobs met François Mitterrand to speak to him about the knowledge economy and he said: "You must know, Mr President, a very simple thing, which is that the oil barrel of tomorrow is software." So on his level, he said exactly the same thing: knowledge is the oil barrel of tomorrow.

This policy, if you will, will continue when Barack Obama, for example, names a minister of energy who isn't an old oil ambassador as was the tradition before, but a geek, a Nobel prize winning physicist who doesn't have a good knowledge about oil but who does have a good knowledge about knowledge. And why would he do this? Because global knowledge is exploding, it's doubling every nine years. We have to find new ways to transmit it because our methods of transmission are bad, even this presentation, it's essentially verbal and language is a very inefficient way of transferring knowledge.

Language is very low, perhaps you have videos which are a bit better, video games are even better and that's how Korea is already transmitting knowledge. Korea has a whole Ministry of Knowledge Economy, and when it had to transmit knowledge about robotics, it didn't write school programmes, it didn't produce press releases, it created a theme park, Roboland, with the Einstein robot here as a

mascot. Why? Because global knowledge is exploding and every country in the world, if they're clever, is looking to respect this equation, the streams of knowledge should be proportional to the growth of knowledge. This isn't the case at the moment. Knowledge is exploding, but our ways of transmission aren't. So there are some solutions for that, like CERN which is between Switzerland, Italy, and France. Knowledge is collaborative, which means it's shared by the whole world, everyone has a little piece and that has an immediate consequence. This consequence is that if we don't learn as a group we'll no longer learn at all, that means that in the future, the word expert won't exist to bolster an individual's ego, but the word expert in the dictionary will have to refer to a group.

The rules of the economy of knowledge are in fact very simple. For example, here we're in the process of making a knowledge transaction. What is a knowledge transaction? It's when I give you knowledge and you give me attention. The currency of the knowledge economy is attention and time and that's what makes this magnificent equation very simple: the streams of knowledge are proportional to attention multiplied by time. The consequences of this equation are spectacular, do you know why? Because in there, what it says is that purchasing power in the knowledge economy only depends on you. The knowledge economy is the only one where purchasing power only depends on you.

Every human born in the world is born with purchasing power in the knowledge economy whereas in the market economy or the raw materials economy, not every human is born with purchasing power, but we all have time and attention and with that, we can buy knowledge. And that changes the whole economy. The other rules of the knowledge economy are also game changers.

Take the first rule, exchanges of knowledge have a positive outcome. What does that mean? That means that if I give you knowledge, it is still mine, whereas if I give you 10 euros they're no longer mine. The second rule in this approach, the exchanges are not instantaneous. I can give you 10 euros from my hand to yours, that's instantaneous, but this conference takes time and that also changes everything. Finally knowledge exchanges are not linear, that means that knowing A and B together is a lot more than knowing A on its own and knowing B on its own, and that, in the same way, has nothing to do with capital economy because having 10 euros and 20 euros together is exactly the same as having 10 and 20 euros separately.

Another fascinating dimension of the knowledge economy is that it encompasses all sustainable development. Sustainable development, why is it a sub-field of the knowledge economy? Because nature is a library full of solutions. Do you want new ways of governing? Observe termite mounds and anthills and you'll have them. Do you want new ways to remove pollution from soil? Look at mushrooms, with micro remediation, we now know how to remove organic pollutants from soil and perhaps even later, how to remove nuclear pollutants. But this library which is nature, we've burnt it instead of reading it, that was the industrial revolution. We thought ourselves to be intelligent because we knew how to burn books, put them in our steam engines rather than reading them, and more than that, we scorned people who were illiterate but who knew how to read this library. Think about the French civilizing mission, in the end what was this civilizing mission? It was the industrialising mission, that's all.

The civilization that we brought was the industrial revolution and this industrial revolution was to tell native people in Australia, in the Amazon, in Algeria, who didn't know how to read but knew how to

read nature, to tell them: "burn these books, we don't know how to read them but that's not important." The industrial revolution also did lots of harm to the knowledge economy in general, not only to nature which is therefore our universal library. It did lots of harm to the knowledge economy because it changed from a transmission of knowledge based on love as was the case in the Renaissance, we loved knowledge before taking it in, to a transfer of knowledge which was exactly that. That's our current transfer of knowledge, force feeding. In industrial education, we don't consider that we must love know how, Love can do, the mantra of Silicon Valley, is quite the opposite, you have packs of geese who arrive at the education system, we have a volume of knowledge to inject them with, whether they like it or not, that's not the problem, this volume of knowledge must be injected yearly and the pack must circulate, that's the transfer of knowledge in the industrial era. It's not based on love of knowledge.

And yet, as I said, remember, the currency of the knowledge economy is attention multiplied by time. You will never give so much attention or time as when you're in love, with a person or with knowledge, it's the same thing, you will never give as much attention and time as when you are in love. Also, so that we can turn the page over from this industrial era which, from the point of view of knowledge exchanges, was an error for us, firstly because it burned nature, our communal library, but also because it did not encourage us to love knowledge before absorbing it, and I can guarantee to you that if you are ever in love with knowledge, your learning will be punctuated by very simple stages which are summarized by this diagram: 5, 50, 500, 5000, perhaps 50,000.

That's the number of hours which punctuate the stages of a piece of knowledge when you're passionate about it. After 5 hours, you'll enter into whatever piece of knowledge: pastry making, jiu jitsu, quantum chromodynamics, or Chinese, 5 hours. Maximum. After 50 hours you're autonomous, that means that you've made love to the knowledge of Chinese, 50 hours in total, we could leave you in China, you no longer need a manual to learn. It's enough for you to listen to people and read signs and you'll no longer need a manual so you're autonomous at 50 hours. After 500 hours, you could teach. For example, a pilot's license is under 500 hours. After 5000 hours, you could have the Nobel prize. There are Nobel prize winning authors who have spent less than 5000 hours in total writing their works. Finally, after 50,000 hours that's a true marriage, that means 17 years of 8 hours a day, after 50,000 hours you've found the love of your life in the world of knowledge and therefore Nobel prizes, ratings, etc., they're no longer your problem, you're what the Japanese call a national treasure, and what we can call a treasure for humanity. Very few people reach this level, but it is the peak of the knowledge economy.

You fell in love with a field, you've worked on it for 17 years of your life, you've dedicated 17 years of your life, and much more than being happy, you've become a treasure for humanity. So as you can see, the knowledge economy is in fact very simple, and that completely changes the world and I'd like to really remind you of this fascinating dimension from the point of view of development, it's the only economy where purchasing power only depends on you. Thank you very much.

Conclusion

The knowledge economy is the only economy in which purchasing power only depends on attention and time.