

A world created from ideas, as immaterial resources are limitless

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We put high hopes on analyzing big data, but we failed as we haven't found solutions to the essential problems of our society. Questions like: What is the superior way of organisation of our society in the future or what's the role of democratic principles in the future? – need to be asked and solved. In the past globalisation, optimization, administration, regulation have served us well and brought us to the level where we are but apparently as the economic situation shows now, we are in a stagnation and all those principles have reached their limits. We need new success principles. 'I think those success principles are co-creation, co-evolution, collective intelligence, self-organization and self-regulation.' – says Prof. Dr. Dirk Helbing, Computational Social Science, Department of Humanities, Social and Political Sciences, ETH/Zurich

In your opinion our hopes for analyzing big data to solve many problems have failed because we still haven't found the solution for the existential problems of our society. What suggestions do you have? What could be done to look at the problems from a different angle?

Dirk Helbing: No doubt big data creates great opportunities, mainly business opportunities as we can see with Google and Facebook but it has not benefited societies at large at least not economically. The economy has not made much progress in

the past years, we're waiting for exponential growth. Somehow we haven't unleashed the full potential of big data and we haven't successfully addressed issues such as global warming, climate change, making peace, stabilizing the financial system, reducing mass migration, averting cyber crime and a number of other things. Many of those problems are related to the lack of sustainability of our society and it seems that we haven't focused enough on the roots of our problems. We have taken a technology driven path where the idea was to push technology forward as quickly as we can to create leadership. Many of these technologies are quite powerful which means that we could also make big mistakes.

What mistakes could that be?

Dirk Helbing: The Americans have pursued a path that is characterized by forecast. They're trying to predict and control the future to maximize their power by information asymmetry. But it turns out that power is not the solution to many of the problems that we have today and I believe that empowerment would be the solution. This paradigm change would really unleash the economic growth that we're waiting for so that everyone can benefit from the socio-economic transformation.

Do you have examples on how this could work?

Dirk Helbing: The Japanese for example are pursuing a different path – they call it backcasting. They're trying to imagine where they want to be in twenty years from now as a society. Then they ask: how could we use technology to get there and what kind of technology does it take?

I personally believe in the backcasting approach because it turns out that the digital transformation can lead to different kinds of societies. We can basically upgrade any kind of governance style of the past, so we could have fascism2.0, communism2.0, feudalism2.0, democracy2.0 and every

other form of society and I don't think we would want to live in some of them.

So the question comes up:

What is the superior way of organisation of our society in the future and what will be the role of democratic principles?

Some people have claimed we don't need democracy anymore. Privacy is under attack, informational self-determination is under attack, participation is under attack, division of power is under attack.

It seems that many people think this have been historical concessions to citizens when political power was tumbling while I came to the conclusion that all those things are actually functional requirements for modern societies to thrive. They are needed to get to a certain level of our economy and society and we should therefore not abandon them.

I think if we don't pay attention we could easily fall back into terrible war times and I don't think anybody would want that.

What does it take to get our society to the next level?

Dirk Helbing: In the past, globalisation, optimization, administration, regulation have served us well and brought us to the level where we are, but apparently as the economic situation shows now, we are in a stagnation and all those principles have hit their limits.

How can we get beyond that?

Dirk Helbing: We need new success principles. I think those success principles are co-creation, co-evolution, collective intelligence, self-organization and self-regulation. This requires new technologies and new ways of using those technologies which are now becoming available. In a few years the blockchain technology, the Internet of Things and in

particular the combination of them (we haven't grown them together yet – but I think this has to be done) will be the basis of a new socio-ecological finance system that can boost a circular and sharing economy which would bring us into a much more sustainable state. Only with such a transformation we can get our planet into a stable situation where all people can live with the resources that we actually have. A long trip.

Technology, especially artificial intelligence, is often posed as threat to our society in respect to replacing many jobs

Dirk Helbing: Yes, one of the implications of the so much mentioned artificial intelligence is that we are getting to a point where it will replace many of today's jobs. Every routine-based job will be doable by algorithms, robots and artificial intelligent systems and for reasons of cost and efficiency we will see massive automation. Many people expect that about fifty percent of today's jobs will be gone in a couple of years. Some people from major IT companies predict that the unemployment problem will hit us in two to four years already.

At that time not be confronted with the full extent of the problem, but we will feel it strongly so we need to prepare for this. The old approach of unemployment payments only helps up to a certain point so either that will totally destabilize our economy and also our socio-political system, or we need to fundamentally reform the basis of our economy. I think there are solutions that wouldn't lead to collapse but the only way to avoid that collapse is to change today's socio-economy.

This new framework would also need to transform the financial system. We have run into a situation where the debt levels of governments are so high that the interest rate of the EZB had to drop to zero and even became negative. This will in itself destabilize the current economic framework as it is made for positive interest rates.

So it's pretty clear the present financial and economic system went entirely out of control. I believe it will collapse and will have to be reset. Therefore I think it's a matter of survival in fact to get the digital, ecological and financial transformations done.

The good news is that since a very short time we have new approaches to address our existential challenges as technology has recently made significant progress. So now we can create the framework for this sort of social ecological finance system and its new economy 4.0. We can actually do it. There's a lot of hope and there's a lot of potential.

I think we can build a better world in particular as this digital economy is an immaterial economy therefore limitless. It is basically an economy built on ideas and I think that's a really amazing perspective.

Which will be the tools for the transformation and what would you suggest as path to the solution?

Dirk Helbing: I think we're now going through a phase of enlightenment. We all need to become aware of the situation we're in. It's a period of insecurity in the societies around the world. It's clear that we would need to take action all together because this transformation is so big we can only master it together – every one of us.

We would need to use all our resources and put them together in joint action.

I think there will be a new zeitgeist pushing things forward.

From your point of view what jobs would be needed for this undertaking that have no name yet?

Dirk Helbing: As said before we will lose lots of jobs in the future, but I think it is actually a good thing. Not only because it's making production more efficient, but also because it's freeing up capacities for those things we didn't have enough time for in the past such as social and

environmental issues. And we'll have a lot of jobs related to creating, collecting, sharing augmenting data and that can be done basically by everyone in a crowd-sourced way.

Next to that I think gaming will play an important role in the future. Not everyone can be a programmer of an AI system while we know roughly how future organizational frameworks might look like, the details still need to be figured out.

The question is: How could we find and test them before we implement them?

In principle we can conduct experiments in virtual reality environments. It will feel like playing a game, but in fact, while we are playing a game we can check out the implications of a new financial system or a new decision making procedure for example and in this way figure out better solutions for the organization of companies or societies or our economy. It will not be uselessly spent time.

Simulator as job description?

Dirk Helbing: Some people are asking what we should do with all these people who are not highly qualified and spend their day playing games and in fact if we just design the games in such a way that we can learn something about the possible organizations of our society and economy – that would be time well spent because it requires something like IT scouts to discover these new opportunities.

In a perfect world what is your vision of what should happen? (I know there is no perfect world – but if we simulated...)

Dirk Helbing (smiles): I think it will look a lot like a world made up of ideas, that's pretty clear when it comes to virtual reality. As our material resources are limited, I think immaterial things will become much more important. Given the speed of the digital revolution, we may in fact live in a new, much less material reality in just one or two decades from now. It could be a better world for all of us!

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Prof. Helbing shared his insights at the [European Forum Alpbach 2016](#)

About:

Dirk Helbing is Professor of Computational Social Science at the Department of Humanities, Social and Political Sciences and affiliate of the Computer Science Department at ETH Zurich. He earned a PhD in physics at the University of Stuttgart and was Managing Director of the Institute of Transport & Economics at Dresden University of Technology in Germany. He is internationally known for his work on pedestrian crowds, vehicle traffic, and agent-based models of social systems. Furthermore, he coordinates the FuturICT Initiative (<http://www.futurict.eu>), which focuses on the understanding of techno-socio-economic systems, using smart data. His work is documented in hundreds of scientific articles, keynote lectures and media reports worldwide. Helbing is an elected member of the prestigious German Academy of Sciences "Leopoldina" and worked for the World Economic Forum's Global Agenda Council on Complex Systems. He is also co-founder of the Physics of Socio-Economic Systems Division of the German Physical Society and of ETH Zurich's Risk Center. In 2013, he became a board member of the Global Brain Institute in Brussels. Within the ERC Advanced Investigator Grant "Momentum" he works on social simulations based on cognitive agents. His recent publication in Nature discusses globally networked risks and how to respond. In a further publication in Science, he furthermore contributed to the discovery of the hidden laws of global epidemic spread. On January 10, 2014, he received a honorary PhD from Delft University of Technology, where he is now heading the PhD program "Engineering Social Technologies for a Responsible Digital Future".