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Title:	Stefanie Kunkel: Digitization under the banner of sustainability
Episode:	06
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Speaker 2:	Julian Mehne/JM

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Stefanie Kunkel: When we as a research group or as a research institute approach the so-called stakeholders, we always have to consider: What is the benefit for the person to talk to us now? How can we prepare the research results and perhaps also bring them from this abstract level to a very concrete level so that they are useful for the people?

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Speaker Announcement (under music): Listen.UP. The Podcast of the University of Potsdam.

Speaker BK: Today: Digitization under the banner of sustainability. With Stefanie Kunkel.

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Stefanie Kunkel: When I look at my own research now, it is very important for me to get in touch with politicians, and at the same time also to talk to entrepreneurs and people who work in the private sector. But then I also notice in the daily implementation that these worlds perhaps don't fit together so well. We have a scientific world that is focused on publications and an economy, a private sector, that has to look at how people generate profits, how employees are productive. And if you then initiate a conversation which at the first moment does not directly bring a benefit, then it may be the last conversation that you have with the company representative, because the knowledge that you gained from it did not seem to make sense or was not directly useful in practice.

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Speaker BK: For Stefanie Kunkel, sustainability was a concern early on.

Speaker JM: And early on, she saw it as a "cross-cutting issue" that needed to be looked at from different perspectives in order to make sense of it.

Stefanie Kunkel: And that's why I actually decided to study economics, to be able to better assess what the levers are to implement more sustainability in the economy. Of course, at the beginning it wasn't quite as clear to me as it might have been in retrospect, but in the end I think that these stations actually contributed to me becoming pessimistic about sustainability on the one hand, so if you look at how economics is taught, for example, sustainability plays a very minor role. But on the other hand, I am

optimistic because I see that people are increasingly interested in it, that it is definitely a topic that has received much more attention in recent years and where I now have the feeling that it also offers a professional perspective.

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Speaker BK: Stefanie Kunkel completed her studies in Public Economics in Berlin.

Speaker JM: Today, she is a researcher at the Institute for Advanced Sustainability Studies (IASS), which aims to promote dialogue between research, politics, business and civil society.

Speaker BK: Within the research group "Digitalization and Transformation for Sustainability", she is writing her dissertation on the topic of "Green Value Chains through Industry 4.0". This research work, with which she was nominated for the "Better World Award", is about sustainability in the supply chains of the globalized economy - and how digitalization can and will impact this.

Stefanie Kunkel: And Industry 4.0 is perhaps a bit of a fashionable term. If I remember correctly, it actually comes from Germany and was introduced there by industry to show that digitization will transform industry in a very profound way, but it should perhaps be said that Industry 4.0 is currently more of a vision than actually implemented in many places.

That would be, for example, Big Data analyses, artificial intelligence or machine learning algorithms and just generally a networked industrial production. And now you can think about it: How would this affect the supply chain if companies were already using all these technologies?

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Speaker BK: According to Stefanie Kunkel, one of the expectations of "Industry 4.0" is to enable a circular economy in which materials are kept in circulation. If you always know exactly where a good or production is at any given time, where it is going and what is in the goods, using the technologies mentioned, then recycling and energy-efficient production are easier to implement.

Speaker JM: However, interviews with company representatives conducted by Stefanie Dunkel for her dissertation show that many of these potentials are not yet being used.

Stefanie Kunkel: In other words, the supply chain managers we spoke with were already convinced that digitization has a positive effect on resource consumption, on energy consumption, or that it has a reducing effect in that sense. But they also said that in many places they still don't know exactly how to implement it and that there is perhaps not yet the pressure, both from society and from the management level in the company, to actually do so. And I think it is interesting to ask at this point: What are the technical possibilities on the one hand and what is the practical reality of implementation on the other? This is also a question that I am devoting a great deal of attention to in my dissertation. I would actually like to refrain from showing only "What are the potentials, what are the opportunities?" and from painting an overly positive picture, but would also like to show "What are the hurdles that exist both in politics and in society and industry that prevent us from using these potentials?" And I

believe that we have to make sure that we not only see the opportunities, but also ask ourselves: What are the risks and why are we not yet able to take advantage of many of the opportunities?

Speaker BK: To this end, it must be explained that digitization has three types of effects on the environment:

Speaker JM: First, the direct effects, i.e., the resources that go into digital products such as computers, smartphones and so on. This includes the energy consumption of these devices and the infrastructure that enables their use.

Speaker BK: Second, the indirect effects - when, for example, a company manages through data-driven analysis to produce precisely during the peaks of renewable energy generation. When robots are used only as fast as necessary - and not as fast as possible to achieve greater energy efficiency. Or when digital technologies are used to create new services:

Stefanie Kunkel: Then we have a shift, then we observe in the economy a shift from the production of goods to the provision of services. For example, if I use a car-sharing service in the city, it's different than if I had bought a car myself. So this is a structural effect that is created by digitization. But what we are aiming for now, for example in the supply chains, is this aspect of efficiency through transparency and through the information that is available to us, we want to better understand where we can still make savings, for example, energy savings or resource savings.

Speaker JM: Third, there are also the so-called economies of scale. And these are often left out of the equation.

Stefanie Kunkel: That means that when we use digital technologies, we often also have growth. For example, new services are made available that help the economy grow. Or simply that we can produce better and therefore produce more because, for example, we have lower costs in some areas. The company saves energy and says: I can now reinvest this. This money that I save through my higher efficiency, which I have gained through, for example, data management through digital tools in production, so here through digitization actually, and that's what I meant by this acceleration of unsustainable consumption and production patterns, that through digital technologies we have a strengthening of the existing economic system, which is just not geared to environmental protection in many places.

Speaker BK: Here, it would be important for companies to be clear about why they want to implement digitization - whether for ecological or economic reasons.

Speaker JM: In other words, whether savings are to preserve the planet or to keep growing and grab more market share.

Stefanie Kunkel: And this effect, that digitization actually makes companies more productive, makes them more competitive, naturally also contributes to the growth of the economy as a whole and perhaps also to the efficiency advantages such as those I have described in relation to energy management, where I could actually theoretically save energy through smarter energy management, so that these savings are reinvested and lead to growth. And that is this rebound effect, that we actually, even though we had this efficiency target, still consume more energy at the end of the year.

Speaker BK: According to Stefanie Kunkel, such developments, which contradict the sustainability goals, are inherent in the logic of the economic system.

Stefanie Kunkel: So it's no coincidence that it's happening this way, but there's simply no framework for saying that the company can no longer grow or that the economy can no longer grow. There are many reasons why we have such a growth paradigm, but this means that we are running the risk of digitization - as the German Advisory Council on the Environment once put it - becoming the accelerant of an unsustainable economic system.

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Stefanie Kunkel: And that means what it would actually need, in my eyes, would be a digitalization that questions this type of value creation more strongly. It would also place greater emphasis on completely new approaches to value creation and not promote a "business as usual" approach.

Speaker BK: Addressing issues such as digital rebound therefore also requires policy frameworks such as carbon pricing that create a monetary incentive for the shift to a circular economy.

Speaker JM: According to Stefanie Kunkel, the problem is that sustainability is demanded by civil society, but is not implemented by companies as a cross-cutting scheme. To prevent greenwashing, sustainability should not be anchored in the communications department, but at the highest management level - to then also be pursued strategically across all departments.

Stefanie Kunkel: In my view, one problem is that the interfaces tend to be dealt with on an ad hoc basis, i.e. we may have good sustainability management in our own company, where the employees switch off their laptops when they go home in the evening and paper is saved. Or we have a good strategy with regard to sustainability in the selection of suppliers, in that we try to avoid child labor or we attach great importance to human rights. In the countries where we source our resources. But what is really missing is that the digitization process is also designed in the company in such a way that it can then contribute to these sustainability goals at all points. What we have found, for example, is that there are information islands in the companies. In other words, we have an aspect here that deals with efficiency in this production step. We have the information there about the suppliers and here maybe about the internal sustainability management at site XY. But we have practically few role models, as far as I know, where we can see that the company has thought about this from A to Z. How can the product be used throughout its entire life cycle? How can the product become sustainable throughout its entire life cycle and how can digitization contribute to this?

Speaker BK: Of course, environmental management systems evolve over time and companies cannot be expected to introduce new systems overnight. Bringing together different pieces of the information puzzle about the potential of digitization for sustainability is the real challenge, says Stefanie Kunkel.

Stefanie Kunkel: And if I may use that as a starting point, that of course has to do again with the entire economic system, where one can implement in the companies at most, that which brings monetary advantages. And that is also drilled into you relatively early on in economics or business studies, that it must also be economically worthwhile. And I believe that if you look at many of the pressing sustainability challenges, they are not just things that will be economically worthwhile. So maybe just

very long-term. But the company may not be planning over decades, they already want to see short-term savings or short-term benefits. And that means the reasons why sustainability is not implemented as strategically as it should be. They are understandable, but they also result from a wrong prioritization, in my view, that short-term goals are pursued more strongly than long-term advantages. Because in the long term, of course, sustainability and environmental protection will be worthwhile for society and for companies. But possibly not in the very short term.

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Speaker JM: Accordingly, the knowledge transfer that the research group "Digitization and Transformation for Sustainability" at the IASS is trying to promote is also challenging, says Stefanie Kunkel.

Stefanie Kunkel: We also have contacts with various political groups and are in contact with them. I would say that the openness that we have already experienced with various people is a success in itself, that you have the opportunity to talk to decision-makers at all. At the same time, it's very difficult to follow up afterwards: What effect did it have, for example, if I talk to a member of parliament and then send her a document afterwards that contains important demands with regard to digitization and sustainability? How can I now reconstruct whether this had any effect on the person, whether it flowed into any political process? I find that relatively difficult. And of course you also try to follow up again and maybe ask again half a year later What actually happened with it? But it's actually relatively rare that you realize you had a direct influence.

Speaker BK: Nevertheless, it is hoped that the sum of the discussions, workshops and events held could set one or the other course in the direction of system-immanent sustainability.

Stefanie Kunkel: You should probably lower your sights and not have excessive expectations of your own influence, because ultimately there are a large number of interests that are all fighting against each other. And I think you have to take small steps.

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Speaker Announcement: Listen-UP: The Podcast of the University of Potsdam

Speaker BK: Produced by speak low on behalf of the Innovative University Potsdam.