DSR ACADEMY

15-01-2025 STEFAN SEIDEL – TRANSCRIPT

2 SPEAKERS
Michael Gau
Stefan Seidel

Duration
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START OF TRANSCRIPT

[00:00:00] Michael Gau
Hello and welcome back to our interview series within the DSR Academy. Today I have the great pleasure to welcome Professor Doctor Stefan Seidel. Stefan is currently Professor of Information Systems at the University of Cologne. Stefan is also a remarkable scholar whose contribution to the field of information systems has profoundly shaped our understanding of digital transformation, sustainability and organizational change. Stefan's academic journey exemplifies the ideal of a modern scholar who bridges theoretical rigor with practical relevance. Hi, Stefan, and welcome to the interview.

[00:00:41] Stefan Seidel
Hi, Michael. That's very kind. It's a pleasure to be here.

[00:00:45] Michael Gau
Well, the pleasure is on my side. Stefan, do you mind to explain a little bit to the audience about yourself and your current tasks and so forth?

[00:00:54] Stefan Seidel
Sure. I'm in the information systems field. I've been in the information systems field for quite a few years now. Currently, I'm professor of Information Systems at the University of Cologne. My research interest is in, you said, digital transformation innovation. That's correct. The way I'm explaining it is that I'm interested in how emerging technologies are implicated in organizational change and in institutional change and innovation. Emerging technologies like artificial intelligence, like blockchain, from a method point of view, perhaps I really take two different perspectives. One is exploratory research, where I'm interested in constructing theory, building theory using innovative combinations of methods and data sets. That's creating descriptive accounts and explanatory accounts. But I'm also interested in, as you said, design and intervention, specifically also in the interrelationship of the two. So how can we use explanatory knowledge, how can we use theory in order to make informed design decisions? How can we use that in order to create design knowledge, such as in the form of design principles. The question was talking about me, right? So that's good enough, perhaps.

[00:02:27] Michael Gau
Yeah. Thank you very much. It's very interesting to observe your journey a bit. And today this is a kind of special interview, I would say, because in the past we were looking at concepts, theories, frameworks and guidelines; how to conduct design science research. Today we are talking about how to apply these frameworks and these guidelines or these reference processes, and therefore we selected a paper with the title Design Principles for Sense Making Support Systems Environmental Sustainability Transformations. This paper showcases how we can apply all these different concepts in a real-world problem and solve the problem by an innovative artefact. The paper describes a very descriptive how, for example, derive from a

kernel theory or how kernel theory can inform a design, how the design is then evaluated and how design knowledge can be abstracted in the form of design principles. And also, it showcases a very beautiful, I would say, how this process is conducted iteratively. So, this is not one single shot. It's done over time, and these things have to be redefined. Things have to be reshaped. This is very nicely described in this paper. It's also a little bit special, we haven't had that in the past, because I was a co-author of this paper. Stefan back then invited me to participate in this project. I know this paper pretty well, but still, I think it's interesting to talk with you today about this paper and about your perspective. Maybe what you would change, and what do you think of it nowadays, or what's still valid in the paper? So, my first question is: What was your motivation to write this paper in the first place? And what is the reason behind it?

[00:04:42] Stefan Seidel
What was our motivation? We have to let the audience know that this is a long time ago. I looked into the archive just before this conversation here. We started this research in 2013. That's more than ten years. Also, as you said, you and I and other people, Leona Chandra Kruse, Nadine Székely, Daniel Stieger were part of the team, but you and I were co-authors. This is going to be a bit of a biased conversation, probably, but let me see if I can recall what happened. So, what I remember is that by that time, so this is 2013, we just published or were about to publish a paper with Jan vom Brocke, Jan Recker and myself on sustainability transformations. That was exploratory qualitative research. One of the things that we had learned is how important sense making is in some very important organizational processes and these sustainability transformations. And of course, we did our homework and reviewed the literature, and we noticed that the way that sense making can be supported using digital technologies in organizations might be very useful, but we didn't know how that actually works. So the ambition was understanding better how we can design systems so that they can support sense making in organizations. And the boundary condition at that point was sustainability transformations. That's how we started. I'm sure there were other factors that made us embark on this project, including you, who was our developer for this project. Much of the software code you developed. Of course, I think this is something that we're going to talk about a little later today. I think what's always very important in these projects is that you have all the necessary competencies on board. So you need theoretical understanding. You need someone who can implement the system. You need someone who administers the system and all these different aspects. This is something that we could conceivably do. So, I also believe there was an opportunity to do this type of research. Is that a fair answer?

[00:07:17] Michael Gau
Yeah. Completely agree. Thank you very much. And what would you say was the key idea of the paper and what did you want to communicate to the DSR community or the information system community with this paper?

[00:07:36] Stefan Seidel
Well, the key idea was how to design systems that can support sense making. So, we took a social process and one that's fairly well studied and very established in organizational theory, and we wanted to translate that into software in the sense that software can support this process. That was the basic idea. The way we approached that is that we went back to the literature and looked at the different component parts of sense making in terms of the activities, what actors do in order to enable to do sense making. And we took that as a logical point of departure to identify affordances. So, the actionable spaces that certain material features, properties, functions in a system can provide to users so that they can then enact those affordances and in our case, do sense making. So, one important aspect of sense making is that it's always triggered by some

surprise by some ambiguous situation. One of the questions we asked is what can we do in order for the system to create that sort of surprise so that people start the sense making process in relation to the sustainability transformation, for instance. We took that as a logical point of departure, identified affordances, and then from those affordances, so what can be done with the system by a group of users, people being involved in sustainability transformation, we identified specific features. This is then where the development comes in because these features need to be implemented in order to then go out and see if they lead to the intended outcome, which in our case was providing these affordances so that people can embark on sense making. I see this is a fairly long answer to a simple question. But that were the key elements sense making theory as a logical point of departure, deriving affordances, identifying features, implementing the system, and then, as you said, move through multiple cycles in order to learn something about if the design works and how it needs to be altered.

[00:10:01] Michael Gau
Yeah. Thank you. Talking about functions, affordances. One part was developing a system, and this was basically my part. This is what I am proud back then of this of this project. And what is it from your perspective, what do you think is the main contribution in this paper you are particularly proud of?

[00:10:24] Stefan Seidel
Perhaps I can say what worked well from my point of view. I just spoke about affordances and features and how that's then enacted in material observable practices. In order to get to these affordances, we turn to the literature. The first thing that we did was turn understanding of how sense making works into prescriptive knowledge. So, before we implemented a system, we had some conceptual understanding of how such system could work. This is where we started. So, we started with priors, if you will. I believe that's one way of how you can do these design oriented projects. Design principles, the abstracted knowledge can be something that you pull out from your research, but it can also be something that you start with and then implement in order to, that's what we did, learn about and then revise. In that sense, I think this idea of taking a social process, organizational process, sense making and turning that into principles. Of course, when you just turn that into principles, you have no empirical evidence that these principles are useful in any way. But then turning it into a system, learning from the implementation of that system, and then reflecting on that process and going back to the assertions that you made in the first place, that's one of the elements that worked. And the other one is, and I believe I just mentioned that is the team composition. So DSR projects can only work if you have all the competencies on board that you need. I think we did a good job in having the right people on board and the way that we interacted, this is now, again, ten years back, more than ten years back, so the way I remember is that everyone had their tasks, but we did have frequent conversation and sense making in the group in order to understand what everyone else was doing. We did have a shared mental model of where we were moving with this research. I think that also is something that worked quite well. That's things that worked, I believe.

[00:12:57] Michael Gau
Thank you for your answer. You mentioned design principles, and I think this is also one of the cores, I would say, of this publication. And you also mentioned that this was interesting because you said you have these two choices. Either you start with design principles, or you derive at the end or some somewhere during the process design principles. You also said, yeah, we started the project a long time ago, but you can you still remember were there any other hard design decisions or can you explain a little bit more about the paper development process.

[00:13:37] Stefan Seidel
Sure.

[00:13:38] Michael Gau
And what would you do or say different today from the current perspectives?

[00:13:43] Stefan Seidel
Sure. What were the the things that we did? I have the paper open here, and I'm looking at the research process as we describe it. We did start, that's been said, with the formulation of design principles. That involved saying something about the features. But of course, saying something about features in a design principle is still abstract because it's a feature. It's a class of features that can be implemented in different ways. These features were then translated into the system. This is where you came in and developed the system. Then we demonstrated the feasibility of the system in an organizational setting. So, it was not only implemented, it was deployed and the system was used. That was just the first cycle. We went through multiple cycles. So, the system was used and we collected data on the usage of the system. First of all we could see how people use the system because we had the record. What people said, the way they made sense. This is something that we then subjected to qualitative analysis and coded. And also, we did focus groups where we investigated to which extent people saw the affordances that we intended to provide through the system, so that were our main data sources. Then we went on and reflected on those findings to change the design principle. So, we formalized the knowledge and in some cases design principles were adjusted. In a couple of cases, we added something also in terms of sub principles. And then we had a new version of the system and that was implemented. We were careful in recording as far as I remember, the design decisions why we would make certain changes to the system, and then the system was again deployed, again used over a certain period of time in the same organization, and we did the same thing. So, we collected usage data, also ran focus groups afterwards to see if the revised version of design principles were in fact seen, perceived, identified by the people working with the system. Again, we analyzed that and had a final version of the design principles. So effectively we went through two rounds, starting with design principles, then building, intervening in the situation, analyzing data, formalizing the learning in design principles plus had a final step of formalization after the second cycle. Is that a fair description of what we did?

[00:16:32] Michael Gau
It makes sense.

[00:16:33] Stefan Seidel
I think that's what we did.

[00:16:34] Michael Gau
Yeah. It was very exciting process. But looking back, I can remember because it had more this engineering background. For me, implementing a feature was more natural than formulating a design principle. From your perspective, how did you balance or as a team making these design principles specific enough, but also actionable? So, it's not too general? Do you remember?

[00:17:06] Stefan Seidel
So how we balanced generalizability and specificity?

[00:17:12] Michael Gau
Exactly.

[00:17:12] Stefan Seidel
So, first of all, the way that we're conceiving of sense making is not sense making under specific boundary conditions, but is sense making as it's understood in the literature. So that was our point of departure, that's where we started. Of course, that is an abstract idea. And the boundary conditions we had was sustainability transformations. We did study that in that specific case. So we took something fairly abstract and then translated it via principles into a specific system. And this boundary conditions and the question of who are the users is an important aspect when you use the concept of affordance, which was central in our study because it's a relational concept. So the idea is that there's features a system provides and it affords those features, affords certain activities in relation to a user group. The simplification we did is that the user group for us were those people who were involved in the transformation and in fact interested in participating in this transformation. We moved from the general and abstract to something more specific, including one implementation. And the big caveat of any of these projects is that there is any conceivable number of potential implementations. So we picked one and we developed one over time. When we were done with principles that tell us something about sense making, of course, under the boundary conditions that we study. But we did use formal concepts in order to formulate that design knowledge. The idea is that that can be linked back to the literature. Sometimes, I don't know if in this question or earlier, you said, what would you do differently? And I can tell you what I would do differently at this point. It's not really got to do with the paper as such. But what we then continue to do and what we didn't do. So we have the system, we still have the system somewhere. But we did not go to other contexts and different types of settings, different types of organizations. So I think that could have been very interesting to see if we can stimulate sense making and support sense making in contexts that are different from the one that we studied. So we try to make our findings generalizable in the way that we're conceptually describing them. We evaluated them in one specific empirical setting, but we didn't go to other empirical settings. And I'm not saying that could have been done in this same paper, but this is something that you could conceivably do with what we identified. So specificity is there. And there's a contextual element. The findings might be generalizable, but you have to take them and apply them across contexts and across time, and see to which extent they really are.

[00:20:27] Michael Gau
Yeah. Very interesting. And talking about the design principles and its generalizability, what do you think are the implications of these design principles for the stakeholders involved in some sustainability transformations. Maybe in general, or maybe only in this particular context we analyzed them.

[00:20:50] Stefan Seidel
Let me say something about design principles, sorry I interrupted.

[00:20:54] Michael Gau
No, no, please go ahead.

[00:20:56] Stefan Seidel
Let me say something about the way I look at design principles as a type of prescriptive knowledge, in general terms. I think any design principle can inform design, but no designer should just take a design principle and apply it. Design is always contextual, so it needs to be done in the specific situation you are

interested in and where you want to solve a problem. Our design principles, as much as any other design principle, can serve that purpose. Someone can take them, see if they're useful for what they're doing, but then they need to do the things that you would do anyways when you develop software, which is see if the software works. Test, right? That's the practice point of view. So we can certainly not make a claim in the sense that, look, this is how you develop sense making support systems. But we can make a claim and say look we studied sense making support systems. We have some conceptual understanding of how they can be designed. And this might be useful for what you're doing in practice. From a research perspective I just gave you an example of what I believe could be done. This could be taken. It could be implemented in different, well deployed and tested in different contexts to learn something about its applicability beyond sustainability transformations and the type of small organization that we studied in that particular project. Again, that's perhaps the point I can I'd like to make about design principles now that we're talking about that, so design principles are tentative. Design principles should be treated as tentative as we're treating any other type of knowledge. Once you have something that has utility and you can show that it has utility, it doesn't mean this is the end point, but it should be subjected to repeated testing. It should be revised. And design principles, as we all know, are all about utility. Not even the, you know, idea of having any sort of truth value in that sense.

[00:23:10] Michael Gau
Yeah. Thank you very much. I mean, you already mentioned it in the previous answers of my questions. So you would change a little bit for example in where to apply or where to test the design principles. Is there are anything else you would say different today or would change even in the paper if you write it now?

[00:23:34] Stefan Seidel
I think a paper is what it was at the time when it was written. So that's a bit I know this is a bit of a generic answer, but I think it, it did what we could do at that point in time. I think the general idea of taking some social process as a point of departure and translating that into conceptual understanding of how a system supporting this process can be designed. That's an approach that can work. What I would do differently is rather how we could have continued that. Perhaps think in terms of research program in terms of sense making support systems. It's not so much about the paper itself. Of course every paper is imperfect. If you now analyze this paper and it's very detailed, we probably say, look, this is ten years later and we know things that we didn't know back then, so we would do that differently. But I think from a design research perspective, you make a contribution at a certain point in time from any research perspective. Then the question is what's the consequence, what's the impact, what's the cash value of what you did and how do you continue that sort of work. And in that specific case we've had all this effort in developing a system. We were basically in a pole position to continue working in that area. And I think that's perhaps something to take away from this. So design research should not focus on single projects, but it should focus on research programs. So we should have the broader picture in mind. For me that also relates to the way that we're producing design knowledge. It's perhaps not a good idea to have lots of design principles. Every paper develops their own design principles, but to take design knowledge that exists and use it, extend it, question it to contribute to cumulative tradition. I think that's a good idea.

[00:25:45] Michael Gau
Yeah. Thank you very much. I completely agree. This also leads me to the next question because publishing is one important part of academic life. We all have to publish and we all want to publish. So it's part of our job. What would you recommend to young design science researchers regarding publishing DSR projects or parts

of projects? In respect to your experience, conducting design science research, or publishing design science research.

[00:26:15] Stefan Seidel
Can I give a generic answer again first?

[00:26:18] Michael Gau
Of course.

[00:26:19] Stefan Seidel
Because you said, what's the recipe for publishing design research? Doing good design research is a first place. That's the key. What does it mean to do good design research? First of all, in research we need to be very rigorous in what we're doing. We need to be clear about what we want to do. Which doesn't mean that it can't be an exploratory process and we can, you know, learn as we go. Specifically in design processes, which are iterative processes, learn as we go and create the path of inquiry as we move along the project. But we need some understanding of how we're approaching that. Then we need to document what we're doing in a rigorous way, because otherwise it'll be very difficult to create the transparency and provide the rationale for what we did once the research is done. That's perhaps one aspect. The way we approaching and documenting research. Another one is got to do with the, in a sense, simplicity of what we do in design science research. And I would in general lean towards simplicity in the designs and focusing on what is essential for a certain design. We should be thinking very thoroughly about what is essential, what is the idea that we're trying to implement and then evaluate and test in order to move the discourse forward. I'm saying that because I believe sometimes there's a tendency to trying to accomplish a lot because it's so tempting and it's so fun to develop systems, but trying to understand what specific idea, design idea that can be conceptualized can move a discourse forward and contribute to cumulative tradition in DSR that's perhaps a recipe. Then the outcome that we want to accomplish in a design research project is something to think about. We've been talking about design principles a lot. I'm sure not everyone would agree that. I'm not saying that even that design research should always just develop design principles, there can be other types of contributions, like a clever solution that can be connected to the discourse and that can make a contribution, perhaps a full fledged design theory can be an outcome. But in any case, whatever is developed should be looked at as being a tentative intermediate outcome that will be subjected to further testing. So that's a couple of aspects. So simplicity, parsimony perhaps of the types of conceptual development around design.

[00:29:24] Michael Gau
Yeah. Thank you. That's very helpful. I think for young or less experienced design science researcher in tackling their next publications. Is there anything else you would desire, for example, for design science research field in general or the community? You just mentioned, for example publishing less design principles or focusing on different aspects. Do you think this is something the community also needs to be open to?

[00:30:00] Stefan Seidel
Well, I believe we should. And I'm not saying we're not doing that, but I believe we should always pay attention to engage with each other's work. Look at not only the big theoretical ideas as we did with sense making in our paper here, but also pay attention to how the cumulative design knowledge is moving forward

in the different areas that we're interested in. I think this is something that can can help the field tremendously. Develop further its intellectual core, about how we should be, could be, can be designing information systems.

[00:30:39] Michael Gau
Yeah. Thank you very much, Stefan. This was it basically from my side. Thank you for your time again and experience and sharing it with us. I hope to see you soon. You have the last word, Stefan.

[00:30:55] Stefan Seidel
Well, thank you so much for having me, Michael. This was fun. Thank you.

END OF TRANSCRIPT