



## 23-12-2024 DOMINIK SIEMON – TRANSCRIPT

### 2 SPEAKERS

Fabian Tingelhoff  
Dominik Siemon

Duration

22m 44s

### START OF TRANSCRIPT

#### [00:00:00] Fabian Tingelhoff

Welcome, everybody, to yet another interview of the Design Science Research Academy. I am today here and have the pleasure to host Dominik Siemon, an assistant professor of LUT University who is an emerging DSR researcher and is very keen to tell us more about how he uses DSR and how he tries to contribute to the DSR methodology. But before we start with all the interesting topics you have to tell us about, Dominik, do you want to quickly introduce yourself and give us a little bit more context information?

#### [00:00:31] Dominik Siemon

All right. Sure. Thank you for having me. I'm Dominik Siemon. I'm an assistant professor at LUT University with the Department of Software Engineering. But more or less an information systems researcher. I investigate or do research on how people interact and collaborate with any kind of intelligence systems or AI based systems. This is my topic of research. I do experimental research, but I also do a lot of design science research. I did design science research during my PhD on collaboration systems and creativity support systems, and now I also do meta research on design science because it is a paradigm that is evolving all the time, which we can see in recent publications. I think that is a very good opportunity to build the paradigm, improve the paradigm regarding the practical impact, for example, but also to help scholars use design science research. So I have a few projects in that regard on advancing the DSR paradigm.

#### [00:01:43] Fabian Tingelhoff

Yeah. And this is already a perfect linking to my next question, which is I think you're currently working on a quite large DSR project, which I think spans already some years. If I'm not mistaken, it's on enhancing practical impact and engagement in the DSR paradigm. Of course, we also want to know all your experiences you have with publishing with the DSR methodology. But I think it's especially interesting to hear what you're doing in this big project.

#### [00:02:11] Dominik Siemon

Yeah, good point. The original idea, or one of the ideas, was to enhance the practical impact of design science research. But as research projects start, they sometimes diverge a bit or go in other directions. What started as the idea of does DSR actually have a practical impact now goes more into the direction of how to make design knowledge visible, or how to enhance or support knowledge flows in design science. What happens with design knowledge when you generalize it or when you specify it, when you transform abstract design knowledge in form of design principles into a very concrete artifact and vice versa. It still helps or should help the practical impact of design science, because we realize that practitioners really need very specific design knowledge in form of artifacts, or maybe even very specific design principles like design features for an artifact. But that is the overarching idea. We did quite a few empirical studies we interviewed or like had a survey of design science research academics, whether they think their design knowledge found its way into practice. We have some interesting results there, but also on the amount of design principles

that are created. Whether the researchers should instantiate their design principles, always develop an artifact, or whether they shouldn't, or what skills are needed or what mechanisms it involves. That is the overall project, which was published in a few conference publications right now. But we are working on a journal publication. We call it the design knowledge knot, which helps to show what is happening with design knowledge. So, what is happening when you create meta requirements and then transform them into design principles or what it involves when you instantiate an artifact, because then you specify abstract design knowledge. Here we are working on, it's still a work in progress, will probably take a few more years to be published, but it's ongoing.

**[00:04:44] Fabian Tingelhoff**

This sounds so fascinating. Can you tell us a little bit more about this design knowledge knot? How can we imagine it?

**[00:04:52] Dominik Siemon**

So the design knowledge knot is mostly based on the three cycle view of Hevner, and there is a lot of knowledge flowing from the knowledge base, the theoretical knowledge with the kernel theories, and how you, as a scholar, then use the kernel theories in order to, for example, create meta requirements, or when you capture some kind of knowledge through a survey with the end users of the solution. How do you synthesize this knowledge that you created into meta requirements. Here we try to really look at the mechanisms that transform the knowledge and that move the knowledge through the knowledge nod. So that is the idea of the knowledge nod. We think that this is something that is a bit underexplored yet. We have a lot of these methodologies or process models. We have Peffers, we have Vaishnavi and Kuechler, now we have Schoormann BAUSTEIN, or the echelon DSR by Tuunanen et al. So a lot of these processes are like do this, do that and step by step. But what happens in between. What are these arrows that are linking these things. What happens with the knowledge. We are looking at that, and we try to come up with these mechanisms that then help DSR scholars to really engage in this knowledge flow and like create the design knowledge.

**[00:06:28] Fabian Tingelhoff**

Nice. So with all this in mind, what would be the one contribution of the paper or the one envisioned contribution of the paper that you would think is especially cool and which you would be especially proud of?

**[00:06:40] Dominik Siemon**

I think our contribution is to really make visible or give even tangible like mechanisms or hands on instructions to DSR scholars when they follow a process how to actually connect these specific process steps. What do we have to do in order to theorize or in order to synthesize specific knowledge? What do we actually have to do? And also provide examples of what other researchers did. We are analyzing a lot of DSR publications in the basket outlets. Really look what happened in between these steps. So how did they really come up with the meta requirements? How did they come up with the design principles, what kernel theories are in it, and how they synthesize that and how they may be creating an artifact? Because that involves creativity of the researcher, because you are instantiating, you're interpreting that abstract design knowledge. That is our main contribution that we want to make and that we think really would help DSR scholars to really create design knowledge.

**[00:08:01] Fabian Tingelhoff**

And do you have maybe one specific insight that you thought was so surprising? I mean, you talked about meta requirements, design principles, creativity, and artifact creation. Like, is there one thing that already stood out to you as, wow, this is really cool knowledge?

**[00:08:17] Dominik Siemon**

It's a good point. Good question. I think we are not that far yet, so we are still like mingling in the problem space or the actual investigating what is really happening there. We are uncovering what is really happening, or what do DSR researchers really do? One big finding is maybe already the individuality. Really, every DSR project is different in itself. Every DSR project does different things in order to create the design principles. Do they come up from a survey? Do they come up from engagement with the problem space, interviewing the stakeholders that will probably use the solution? How are kernel theories used? Do some people use kernel theories, but also do they first instantiate, come up with a solution and then create generalized and abstract design knowledge? Or do they do that before. So the difference, the sheer difference in DSR projects, that is one big finding that we already have. We try to accumulate all of that and identify these mechanisms that are happening there. We also talk to young PhD students. With the author team we just ran DSR course here in Finland at LUT, and we realized that a lot of these PhD students who want to do DSR they really lack these links. How do I come from the design principles to the instantiations. What do I actually have to do? Or how can I use the kernel theories? How do I really do that? So the arrows that you see in these processes, what do they actually say. This is a big finding already. We are not there with the solution yet, but we are working on it.

**[00:10:14] Fabian Tingelhoff**

Yeah, I think this is going to be very impactful, especially for those young emerging DSR scholars that need the guidance and that don't know these implicit assumptions behind those arrows. So really cool. I think this already, as you said, like you're not at the solution yet. This brings me to my next question, which is you're working on this for quite a long time already, obviously. So what were in the project the main pitfalls, the main mitigation points where you had to change something? How was the story of the project to where you are right now?

**[00:10:50] Dominik Siemon**

Well, I think doing this kind of meta research is always challenging because there's no real blueprint on how to address that. It's not like a streamlined paper. You can't like really follow the Peffers process or whatever. That's why it takes such a long time, and it's a going back and forth also talking with seniors and talking with a lot of people. We really try to create a solution for a problem that actually is existing. So this is, I think, something that is also important for DSR to really not come up with something which doesn't need to be solved because there's not a problem. Really looking and talking to junior researchers, what kind of struggles they have and where they need help was a very important aspect. We had a vision, but the vision had to be adjusted quite often. This is something I think was one of the big pitfalls to really create a solution that is important and that is actually needed and not something that we want to do just for the sake of creating it. And I think this is important for DSR in general.

**[00:12:10] Fabian Tingelhoff**

Yeah. Totally agree. I think the practical impact also throughout our interview series is something that came out quite frequently.

**[00:12:17] Dominik Siemon**

Yeah, the practical impact was something because we published that and discussed that at different conferences AMCIS, ICIS, and we always had especially senior scholars really talking to us, well, there is a practical impact of DSR, you always should be engaging with the problem space. So your artifacts do have, and that is a result of our survey as well, where we had over 100 DSR scholars answering, and they were really pretty convinced that their DSR knowledge is already implemented in the industry or will be implemented in the industry. It seemed that we are addressing a problem that is not existing. So then there are, of course, other solutions like action design research, which really like to go into the practice and the industry. And here we found that we had maybe a wrong vision or a wrong idea of something that isn't a real problem, but we still think that with our solution and our design knowledge and the practical impact, can also be increased.

**[00:13:35] Fabian Tingelhoff**

Yeah, definitely. I think we're all looking out for your publication. But you also published with DSR as a method, right. So I want to talk a little bit about that too because I think a lot of people can also learn from your learnings, from your mitigation and your projects that you had to make using DSR as a methodology. My very first question on this would be what are your key learnings you have from applying DSR in your own projects?

**[00:14:08] Dominik Siemon**

Well, I think I already mentioned that briefly. It's really the individuality of the project. That's also what I teach my PhD students. You cannot always put everything into the Vaishnavi and Kuechler. You at some point end up having like two cycles, three cycles, six cycles, whatever. Then you're like doing way too much. It is always very individual. You have to find your own way of creating design knowledge. You have to learn the fundamentals. What do I have to do? What is design knowledge? How I can evaluate it. What's the role of the artifact? But at the end, you have to really create an individual process. How many iterations are feasible? When are you satisfied or when there's saturation of your design knowledge. Really have an individual level, and that also relates to the capabilities and creativity of the researcher. What are your capabilities if your solution is a machine learning fine-tuned model, do you have the capabilities to implement that and instantiate that abstract design knowledge? Can you do that? How can you do that? Hevner also talks about innovative solutions. How is are your capabilities of creating these innovative solutions? It is a very highly individual process. I have found that also in my PhD, in my postdoc time when I worked on several DSR projects. Every project was different, and also from reading DSR papers, they all tackle the problem in a different way. So that's the very big learning I had from applying DSR.

**[00:16:07] Fabian Tingelhoff**

Do you think that, despite the individuality of those DSR projects, that there are some overarching main challenges that frequently apply during the DSR process in general?

**[00:16:20] Dominik Siemon**

Yes, so I always like to refer to the three cycle view. You have the design phase, but you also have the relevance and rigor. Sometimes your project tends to shift in some direction. And to really find the balance here is very important. I know some industry PhDs, they might tend to be very much on the relevance part and some others who create something that, yeah, might be still quite far away from the industry, look a lot in the rigor part and put a lot of effort in there and maybe create a solution that is not really applicable to

the industry. Finding the balance here is always a big challenge for all PhD students and for every DSR project.

**[00:17:18] Fabian Tingelhoff**

Yeah, that's actually, I think, a very valid point. Already talking about these challenges in general brings me to actually my last two questions, which is, Dominik, from all your experience you have from applying DSR, but also from analyzing DSR, do you have some recommendations or tips for young researchers that are just getting into the DSR, maybe on how to start a project or how to conduct the project after all?

**[00:17:44] Dominik Siemon**

Yeah. So DSR is a paradigm that is evolving. Look at the current literature. Look at the papers that are just published right now. You don't have to follow the Peffers et al. process anymore. You can look at the echeloned DSR by Tuure Tuunanen et al. Look at the new stuff that is coming out, because that brings and gives a lot of flexibility. Of course, it's important to read the Hevner paper. The first one to understand the basics, but then don't shy away of trying and of course, you have to plan a research project. I tell that to my PhD students, but all the planning can always change. Start, maybe, start instantiating and then look at how your solution addresses the problem. Don't shy away from jumping into the cold water and looking at all possible processes. That is important. Don't shy away from theorizing. I think that is something that is also important. Create design principles. Create an artifact. But what does it mean? What are the implications of that? And what can you theorize based on what you have created there? Don't hold yourself back. Don't shy away of your contribution. It's quite often bigger than you actually think, what you have done. Don't be overwhelmed by all the different, processes and methods and ways you can create design knowledge. Have the foundations in your head. You have to create design knowledge. There is a solution, there is an artifact. But then use your creativity on how to tackle that problem.

**[00:19:41] Fabian Tingelhoff**

Really cool. I mean, also looking at the later stuff, the newer publications, I think really well shows also how the DSR landscape is evolving and therefore also my last question what is your perspective? Do you have any desires for the DSR field as a whole where it should develop towards?

**[00:20:02] Dominik Siemon**

That's a pretty good question, I don't know. I think the DSR community itself is like awesome. We have the DESRIST conference. We have a platform where we can evolve and work on the paradigm. I think that's a very good thing. We have a lot of DSR tracks at ECIS, at ICIS. So that's a good thing. I just hope that we continue working on that paradigm, because at the end we are creating artifacts, we are creating technological artifacts, solutions. And there are a lot of things that we can do on a meta research level. I also think we should look into other disciplines. So I think DSR is interdisciplinary, as information systems is. I'm here with the Department of Software Engineering, and I have a lot of discussions with my software engineering colleagues who are actually doing design science research forever already. But still, the paradigm hasn't found its way into the software engineering. Spread the word, look into other fields how DSR can like overall contribute and help to create a better world, better technology in general.

**[00:21:22] Fabian Tingelhoff**

Spread the word of the DSR to create a better world. I mean, these are very nice final words, but Dominik, is there anything else you want to talk about, which I haven't asked?

**[00:21:32] Dominik Siemon**

Well, I can talk about DSR for forever. I think it's good to keep this short. Don't shy away. In general, all the PhD students or all the DSR researchers. Try out new things. Look at your contribution in a broad way. Look how you contributed. Quite often when you do a DSR project, you also implicitly contribute to the DSR methodology. Because you have changed the process, you have done something new. That also contributes to the DSR paradigm. Really, don't shy away. Be bold with DSR and continue doing great work.

**[00:22:12] Fabian Tingelhoff**

Very nice final words. Thank you so much Dominik, for taking the time, especially day before Christmas between ICIS and HICSS and of course also the DESRIST deadline. Thank you so much for taking the time not only to talk to me, but also to all our viewers. Thank you for all the tips and advice, and I'm looking really much forward, probably, like most of the viewers here, to meet you at one of the conferences in the future.

**[00:22:37] Dominik Siemon**

Yep. Thank you very much, Fabian. And also enjoy the holidays, and thanks for the interview.

**[00:22:43] Fabian Tingelhoff**

Is always helpful. Yeah. Would you change something in the paper if you write it now?

END OF TRANSCRIPT