"There's joy in innovation": exploring the ways of user innovation with Eric von Hippel

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Abstract

I certainly could select several highlights from this conversation with Prof. Eric von Hippel. Yet, the core message of this dialogue is: find joy in what we do. As often, having the opportunity to talk with experienced academics and scholars with a huge impact in their respective fields is a huge responsibility. It makes me wonder if I can do a good job driving the conversation. Yet, I don't take the steering wheel alone. Along with my partner in the dialogue, we explore different routes without a particular direction. I prepared for this interview full of curiosity, as the topic of innovation seems a fascinating stranger to me. I spoke with dear colleagues who were kind enough to help me find a way of getting the most out of the interview. I want to explicitly thank Lukas Falcke and Katharina Cepa from the KIN Center for Digital Innovation and Stefan Haefliger, president of RGCS, for their support and suggestions. My special thanks, though, go to Prof. Eric for the evoking and thought-provoking conversation! I hope the reading gives you as much joy as recording the interview!

Eric von Hippel is T. Wilson (1953) Professor in Management and Professor of Management of Innovation and Engineering Systems. His research explores the nature and economics of distributed and free innovation. He also develops and teaches about practical methods that individuals, open user communities, and firms can apply to improve their innovation development processes. He recently published a series of videos on Basic Concepts on User Innovation, which is available on YouTube. Enjoy the reading!

Gislene: Thank you very much for your time. We are thrilled to have you with us in this activity for JOCO, the Journal of Openness, Commons and Organising.

Eric: I'm honoured.

Gislene: My first question to you is, can you tell me a little bit about how everything started? When did you start studying innovation and when you realised that that paradigm that we had wasn't good enough that we need something else?

Eric: Basically, it was as soon as I read Schumpeter. I'd always been an inventor for my own purposes, and I've been hanging around the MIT. My father always brought me in from age 12 on. He would drop me off at MIT, in the corridors, and I'd look at what people were doing, and I noticed they were building their own instruments. I absolutely didn't believe it [*Schumpeter's views on innovation*]. And that's how I began to say: 'darn it, we have to show that in fact people are much more empowered than Schumpeter would say'.

Gislene: And how was people's reaction at the time?

Eric: Well, nobody was interested at all in Economics. Not a bit. Because it wasn't what Schumpeter had said. I did because I knew it was true in scientific instruments from first hand. As I say, I did it in scientific instruments first and colleagues just said: 'that's just scientist being scientist: no general interest'. My students were all interested in extreme sports. We did it in extreme sports. And again, my colleagues said: 'oh, everybody knows, they're crazy'. So, it took doing the nationally representative surveys and showing how much user innovation there was; just 10s of millions of people spending 10s of billions of dollars. And then then things began to come around.

Gislene: And what made you keep going at the time, since you knew there was a pressure to saying something else?

Eric: Well, I mean everybody has different motivations. I just knew I was right. I knew I was right, and you know, I grew up in a competitive family with older brothers. So, in addition, I was going to show them wrong, right? So, both motivations were there.

Gislene: And how do you see the paradigm evolving now? Do you think we have shifted a little bit already towards this different mindset, really understanding the role of the user or are we still on the transition to get there? How do you see that things are happening now?

Eric: These are such lovely and interesting questions. I mean, it depends on who you ask. The way I'm positioning it, now there are thousands of colleagues and so on. So, it's penetrating, but it hasn't necessarily penetrated economics. Because they have their stylized facts, they have their chess board, you know. They don't really want it overturned. The way my colleagues and I are presenting it is saying: 'look, there's user innovation and there's also producer innovation, Schumpeterian innovation. So wouldn't it be lovely to study their interaction? What you said is not wrong, it's just incomplete'.

Gislene: And are people taking that well or is it still a struggle?

Eric: You know, one of the things you learn is that nobody ever says that this new thing is right. I mean, I remember

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it was so cute. The same colleague who told me: 'it's absolutely wrong', when I showed him the data from the first national survey, he looked at his watch and said: 'Ah, I'm late for another meeting'. So that's as close as we ever got to... So, one cannot expect people to say... And it's true both sides are right. It's just an added matter which many of us now are thinking is interesting.

Gislene: You said earlier that you grew up in an environment where you saw a lot of people building things and that you're also an innovator. Can you give us an example or share a story about it?

Eric: Actually, it's the usual typical user innovator story. We lived up to New Hampshire in a summer house. My job was to cut the wood for the winter. Of course, I decided that I would build an automated sawmill, right? Because I had a need, and it was much more fun building the sawmill than it was cutting the wood by hand. So yeah, here's an example. You do it too. I'm sure. You know, whenever you sort of sit around and you say: 'oh, I have a problem', you invent something, right. You come up with a solution. It's also behaviours. My daughter, Christiana, she studied behavioural innovation and looked at all the sort of suggestions with respect to childcare. And it was really interesting. It's different than guys. When we study guys, they say: 'oh, yes, I did this wonderful innovation'. When she studied Reddit, the pattern was that mothers typically would pose: 'I'm having a problem'. Whether it's, you know, putting the kid to sleep or whatever it might be, and only then did others volunteer their solutions. So, it had to be evoked by somebody's need. But the innovations were amazing, and they were 98% were mother done.

Gislene: Yeah, that's very interesting! And in that sense, while reading your work and preparing for our conversation, I've watched a video of you exploring the case of the guy who implemented several changes in his hand luggage, to sit over it while moving in the airport. At some moment, you mentioned that a company developed a commercial solution based on his prototype, and that guy was never acknowledged through the process. It got me thinking about the situation where you, as a user, you create a solution and then a company comes takes over and you are forgotten. Can you elaborate on this?

Eric: Yeah, well. That was the story about the electric suitcase invented by the Chinese farmer and then grabbed by luggage companies. In a way, everybody's acting according to their incentives because the advertising department of a company has no incentive to waste valuable space saying so and so invented it. They just say: 'buy our marvellous XYZ'. They don't necessarily claim they invented it. It's just 'buy our marvels XYZ'. Although, in some foods, nowadays, there's counter examples where much of the advertising copy is sort of the nature: 'my daughter. Ginny needed the following thing, and so I created it with love for you'. But yeah, those are user innovators who become commercialisers. But with respect to your broader question, I think a lot of times users don't care. They're collective innovations. The mountain bike wasn't invented by one person. It was invented by a whole bunch. And so, they're all actually pleased if somebody starts manufacturing their invention, so that they can be biking instead of cutting pipe in their basement. The way it's working out now, it's funny. There were some earlier experiments where companies like Lego would identify an innovating user in Lego's and say: 'Ok, now you're one of us. Here's a t-shirt. Don't talk to your community anymore'. And of course, that was stupid because it's a community innovation thing. Now, what they do, and what many companies do; they reward the collective by, for instance, in sports sponsoring (e.g., Rodeos get togethers, contests). Because then the community as a whole is benefiting, and that seems to work pretty well.

Gislene: I think that's great. It's a very important step forward for us socially. We are more and more living in individualised societies and in this whole discussion about authorship. When we explore this perspective on user innovation, it kind of makes you think about this whole shift that need also happen in that sense.

Eric: Yeah, I agree. And, by the way, if there is an individual user who wants to commercialise it, that's fine. Nobody's stopping them. Burton Snowboards, a lot of these companies specialise biking companies started by a biker. Nobody is saying you can't do it. It is just that others can do it too.

Gislene: Now, let's change a bit the focus. I'm not an expert on the topic, but I'm a curious person. Online, in several forums, there are some debates around open and user innovation. Are they the same thing? How do they differ? How do they complement each other? I thought, since I'm with one of the best people to help me to understand these debates, let's talk about this.

Eric: Well, one thing you can be very sure of is that terms get messed up over time. So, there was the term *open innovation* used for open-source software and so on, where it was open with respect to others being able to use it. No IP, right? Unfortunately, Henry Chesbrough, who is a buddy, no problem. But he came in and called basically closed innovation open. He said: 'look, companies you can buy innovations from outside your company'. What he meant was the boundaries of the firm were porous, but it

was a buying and selling thing. And so that created kind of a mess because all the companies were enormously relieved. They said: 'Hooray! We knew that open was a modern thing to do, and it turns out, we've been doing it all along'. But for those of us in the research community, it was kind of a mess.

Gislene: All these terms, they always come with a lot of background around them. When you start using one of them, and you feel like: 'Ok, but this is not exactly what I mean'. This is problem because we start using terms in different ways. At the same time, it's a very important thing because the way we call things is the way that make we make them exist.

Eric: I agree. So, to explain, user innovation is something developed by somebody to use it. In general, it turns out that because they are developing something to use it, they also give it away. They don't try to patent it because they're not innovating to sell it. They're innovating to use it. And, 80% in in all our household, I don't know if you've seen the book free innovation, but in... by the way, I'm so pleased that I can give it away. I love it. I just love it. And the fun of trying to persuade my publisher. Think how much more you'd sell if you gave it away, right?

Gislene: I would love to hear a little bit more how was convincing the publisher to allow the free access.

Eric: Well, initially, it was true, in the sense that with my first [Democratizing Innovation] and second [Free innovation] book there was still quite a market for hard copy. Now, it's much less true. So, with the last book Free innovation, I think they sold 2000/3000 [hard copy], but there were hundreds of thousands of downloads. Everybody's happy with it. The MIT press is very good that way. They're excited that it's working.

Gislene: Yeah. It's an amazing initiative because we're talking about openness and accessibility and then it's amazing that it's there.

Eric: It makes me happy whenever I see that. Sorry, going back to your question. User innovation means that users do it. They could, if they wanted, patent it. The focus is on using it. Open innovation, from Chesbrough's definition, he and his colleagues are considering acquiring innovations from outside a company or organisation.

Gislene: That's helpful, thanks! Now, thinking about examples of user innovation, besides the one with the hand luggage, which I find fantastic, do you have any other stories you would like to share?

Eric: I can give you a couple. I mean, so of course there are thousands, but two might be of interest. When you think about, for instance, the industrial revolution, you think about a big thing, right? When you think about user innovation, currently you're thinking about 'oh, so and so invented such and such'. But really? User innovation is broader. For example, in Bangladesh where 30% of the people are underwater 30% of the time and they can't farm in the traditional way that they used to. They are inventing specific innovations, but also the general innovation of becoming an aquatic people. You can look at it as individual innovations. For example, they have invented floating fields, made of Hyacinth that floats and with sort of bamboo sticks holding it together and on top of that some manure or something and they grow crops on these floating fields. These are long fields and in between them, they have gaps. They hang netting and they have fish and ducks in there, so they have protein as well. It's a specific innovation, but it's also part of a system they're developing. They're developing floating schools. The whole system, so you can look at it either way.

In the case of specific innovations, patients usually have needs that are beyond what medical companies supply. Because it's a rare disease or whatever. So, what you see are patients developing their own solutions and sharing them. And it can be quite sophisticated. For instance, the first artificial pancreas was invented by the parents of type one diabetic kids. They said: 'hey, this is stupid; the way you do it now, we need to do it better'. 'Oh, I'm a process engineer, I will figure out a way'. The exciting thing about user innovation in the household sector is that everybody who's an expert comes home at night bringing their skills with them. We're not talking about people who don't know much. We're talking about world experts with a problem that they get together on the Internet and solve. It's wonderful and exciting.

Gislene: Indeed, it's amazing. When you have a personal issue, like a health issue or any other thing, it echoes different in you. You cannot wait because until we have a commercial solution because life doesn't wait. You have to go after the solution. It's nice that we have access to a lot of information, and if we learn how to make sense of them, we can build in on something very innovative.

Eric: It comes back to that thing about: should they sell it or give it for free? Of course, if you're inventing with others a better way to help your diabetic kid, you're not going to sell it to others. You give it to others. They post the design on the web, and they help each other. It's cool.

Gislene: That's super cool, and in that sense, I'm curious to hear from you about the current availability of

generative AI tools and user innovation. Do you think that such availability may transform or inspire changes on how we understand user innovation?

Eric: Yeah, it's going to make it better. We've done studies and we've seen, for example, that people use the knowledge they have to innovate. For instance, in biking, the people who invent new bikes are the ones who already have mechanical skills. Nobody's going to sit down and say 'I'm going to learn mechanical skills to modify my bike'. What AI is doing is giving better tools for invention to people. They can say: 'oh, I want code like this'. As you know, you can just verbally state what you want. In the same way, I've been playing with it, to verbally state, for instance: 'I want something. Can you design it for me?' And I can go back and forth just with verbal prompts. So, what's going to do is open up the field to many more people with needs, but with less skills. The second thing it's going to do is allow people much more easily to find other people's innovations. We are now introducing it to the MIT entrepreneurship boot camps, where people come in and they say: 'Ok, I want to learn how to be an entrepreneur. But, Gee, I don't know what to do'. Well, [we ask] 'what are you interested in'? 'X great, let's look on the web, so you know what users have developed in X'. And in 90 seconds you get a list of innovations. It's all going to be amazing. More amazing than even now.

Gislene: Don't you have any concerns in that sense? We have been hearing so many concerns around these GenAI tools.

Eric: Well, I. Yeah. I mean separate matter. Would somebody say: 'oh, how wonderful. I can make an awful virus'. I mean, it's lowering the cost of doing both good and evil. But it's lowering the cost of doing good. Could be a nice focus on the first.

Gislene: Considering what you mentioned earlier, regarding the role of communities and how people develop things together, do you see 'space' as an important component? Not only physical space, but also the digital space, and the mix of both. Which role does the space play in user innovation?

Eric: You know, it's interesting. I have a colleague, Maria Halbinger from CUNY, who studies makerspaces. And, absolutely, physical makerspaces can be great. But also, increasingly, nowadays, you get together virtually. When you're designing something together, whether it's code or a physical thing, you can so easily exchange information because it's digitised.

Suppose you were a surfer, and you developed a surfboard, and you included special curves in it, so that it went through the water better. If somebody was physically there with you - because nobody measured it, right? If somebody was physically there with you, you'd just say: 'feel this curve here'. And the other person says: 'Oh, yeah, got it'. But if it's digitised, everybody sees something as good as the original right on their home screen.

It has always been the case in open-source projects. I've always been fascinated talking to people. People contribute, they work with each other. It's amazing. However, it's unclear to say whether it's a community because sometimes, I said: 'Hey, Fred has disappeared from the contributors list. Do you know anything about him?' And people would say: 'No. Never met him; didn't notice. I don't know if he has a dog. No.' Just disappeared. So, the aspects of community and so on, it's not clear. Certainly, they exist in some areas, but in others it's sort of a joint working thing. Should be explored.

Gislene: Interesting, that's a good point for our conversation since, at RGCS, we are interested in coworking, makerspace and hackerspaces. All these kinds of spaces that gather different communities, specifically working on creating and building something together.

Eric: And you want to study the distinction between onsite and online communities. You know, all these people who were doing the artificial pancreas, they were located in very different places. We can't ignore that.

Gislene: Building on this, the question of openness and how people should (or could) be open to share, can you say something about that? Is it a sort of skill that we should learn [as other skills] to become a user innovator?

Eric: I don't want to dictate morality here. It's really a personal choice. In open-source software, what people have found? And it's true of companies and individuals. They found that to have their innovation supported by others, they have to show it to others. Otherwise, what happens is everybody is modifying things all the time, and nobody knows... your thing and theirs, so they wreck it by what they're doing. It's sort of people following their own moods and interests. And they should do so. I wouldn't want to force anybody to do anything or suggest one way is more moral than the other.

Gislene: I think of it more like a skill because we learn how to be, we don't know those things. We learn then. So, it's a bit of morality, but also a skill.

Eric: And a choice.

Gislene: Indeed. Before we go to our final questions, I would like to hear from you about the future of user innovation. How do you think it will look like?

Eric: Well, I think it's growing and flourishing. I think it's very important than it does: it's empowering for people. One of the things that has always motivated me is: there's joy in innovation. I think, as the tools become better and so on, that people will do more of it. And that's not only an economic benefit, but sort of personal and social benefit. It's huge fun. It's huge fun. We need more fun, right?

Gislene: That's definitely! My final two questions. The first one is when you look back to your career, to your trajectory, what makes you prouder?

Eric: Oh, can I mention one more thing, by the way?

Gislene: Of course.

Eric: With respect to your earlier question. It's not that everybody should innovate any more than everybody should play tennis. Nobody should feel pressure to innovate. It's just, you do it, if you want to. And you can enjoy the fruits of others doing it, if you want to, again, without guilt.

Gislene: Yeah, that's true. I think, when we visualise or materialise products, it makes sense. However, the example you gave me earlier, of a mother who has a child and has some problems which need a solution...We all have all those problems every day. We should innovate, otherwise we will be doing the same thing over and over again and that takes away the joy of life.

Eric: Typically, it's sort of a combination of circumstances that is particular and enables a person to come up with an innovation and that does not imply that they would innovate in general or could or should. For example, do you know those backpacks they wear for water? You know, in sports you have this little tube that comes out? So, you're carrying water in your back instead. If you're a bike rider, for instance, instead of having to reach down and get a water bottle, you know you have this little backpack and you have a tube.

Well, the guy who invented that was a long-distance bike racer in Texas in the summer. He and all the other people in the race had an issue with respect to reaching down, having to lose position, grab the bottle, try to get it back in the bracket while you're racing, right? But he happened to also be an EMT emergency medical technician. And he had brought his truck to the race. He was used to hydrating people because they all had heat stroke in Texas. So, he had a very close connection with the innovation, and it just happened.

He took one of those bottles of water, and since he had surgical tubing in his truck, he pinned the bag to the back of his shirt, using the tubing. That was the innovation. Now, if he had been an aerodynamics engineer, maybe he would have invented a bike that flew, so that he could shorten the distance. It's not so that you just say: 'Ok, we're going to select a random bunch of users, and they will innovate'.

A) It's choice and preference, and
B) it's skill and the connection to the particular innovation that turns out to work.

That's cool, right? So, no longer do you have to feel obligated to innovate. You can also say, and this is about lead users, who has an incentive to do this thing? And the skills to do it? Let me go and see what they have done. As opposed to "I will sit there and invent everything for myself". That's an advantage of going out and searching. Anyway, so your last question was, what am I proudest of?

Gislene: That was an incredible addition and example! Thanks! Yes, I asked you to share about things in your trajectory which make you proud?

Eric: This is a lovely conversation and you've asked lovely questions. So, I'm really proud of helping to do something that I think benefits people. I mean, if one was doing research on how to fire people, on how might get more effective at it, but it wouldn't be fun. This is really... what makes me so happy is that it's really empowering people. And making it more effective, happier, able to cope for themselves.

Gislene: And how do you do that, teaching people to cope for themselves?

Eric: Well, I evoke it from people. This is true of my PhD students or also my classes. I say, 'what are you interested in?' and, 'What problems have you had?' Then, I ask: 'what have you done to solve it?' For example, in my last class, I asked them about their backpacks, which are commercial things; they all carry around backpacks. And 5% of people, in general, innovate in some way. So, I said: 'well, have you done anything to your backpack?'. Two or three people out of a sixty-person class said yes. 'Why did you do it?', and one says: 'Well, I'm an architecture student and I have these long drawings and the thing sticks out in the rain, and it gets wet. I made myself a cover that does that right'. Or this wonderful kid, he said. 'Well, you know, it's such a pain... I carry around all my electronic gear, and it's such a pain to take it all out of my backpack and charge it. So, I've put a plug into my backpack, and I

plug everything into that, which is inside my backpack, and then I plug my backpack into the wall'. From that, they get the idea that it's something that bothered them. They had a need, and they had the capability to fix it in the way that they did it. And that makes it real. When you teach it, if you teach it, I hope you do, ask them for their own experiences first, and then it'll become real.

Gislene: That's precious advice. So, one last question. I've asked you about what are you proud of and now I have to ask: is there any regrets on the way?

Eric: No, this has been an utter joy. I mean, I just love doing this. I love the excitement. I'm fascinated by the phenomena. Economics operates on stylized facts; producers innovate and so on. The world has changed. We have to go back and look and generate a new set of facts. I've been delighted at being at that level where both I try to understand the phenomenon very deeply and I try to abstract from it. I've had enormous fun. By the way, as I mentioned, my father was a professor too, at MIT. It was so cool.

I graduated from college, and he said: 'Son, come for a walk'. I said, OK, and so we went for a walk. And he said: 'Son, you can do anything you like. You're a free man'. I said: 'great, I'll become an entrepreneur'. He then said: 'son, let me refine that. You can be anything you want as long as you're a professor'. Of course, I went and became an entrepreneur because what son listens to his dad? Eventually, I saw the wisdom of his ways. I just love it. It's a joy.

Gislene: Amazing way to conclude this interview! Thinking about your advice on how to invoke or encourage students to think differently, added to your kind story with your dad: this conversation was absolutely inspiring, full of joy! Thank you very much for your time and for sharing. It was a huge pleasure!

Eric: For me as well, I'm delighted.