

**Noshir Contractor:** Welcome to this episode of *Untangling the Web*, a podcast of the Web Science Trust. I am Noshir Contractor and I will be your host today.

On this podcast we bring in thought leaders to explore how the web is shaping society and how society, in turn, is shaping the web. Today, I am speaking with Professor Susan Halford from the University of Bristol in the UK, where she is a founding co-Director of the Bristol Digital Futures Institute.

Susan is a sociologist whose research is focused on studying digital data and infrastructures from a socio-technical perspective.

Before joining the University of Bristol. She was a founding director of the Web Science Institute and co-Director of the Center for Doctoral Training in Web Science at the University of Southampton in the UK.

Professor Susan Halford is a fellow of the UK Academy of Social Sciences and Royal Society of Arts and is currently president of the British Sociological Association.

Today, I talk with Susan about how and why she got involved with web science and her role in advocating a social science perspective to both research and education in web science. Susan, welcome to *Untangling the Web*.

**Susan Halford:** Thank you very much for inviting me, Noshir.

**Noshir Contractor:** I want to talk with you about your leadership and your engagement with web science in general, the challenges and opportunities that it can help address, and also its relevance during the COVID-19 era. So to start with, Susan, what does web science mean to you?

**Susan Halford:** What web science means to me as a discipline or as an area of research is a very, very broad umbrella of activities that explores the past, and the present, and the future of the web.

And I think under that really broad umbrella from an enormous number of different and very challenging research fields.

I think history is really important because the web didn't just come out of nowhere. One day on Thursday afternoon. Now there's a long history and that predates even Tim Berner-Lee's ideas about the web and that has really shaped what the web has become in the present.

But the present, has really, never ceases to surprise us in terms of how the world has shaped up. And getting underneath those dynamics: the economic dynamics, the technical dynamics and the social and political dynamics of how the web is evolving - and as you say exactly - how the web has changed the world and the world is changing the web, and what that might mean, not only for the future of the web, but for the future of society. And I think web science is uniquely placed to explore those really fundamental questions that matter to everybody on the planet. In fact, even those people who are not yet connected to the web, their lives are really shaped in terms of global markets in terms of the management of war, and all state activities. So I think web science is incredibly important to all of us.

**Noshir Contractor:** And you've spent years now focusing on your research on what you call socio-technical theory and methods, and how they apply to digital data and infrastructure. Tell us a little bit about what you understand by the term socio-technical theory and methods in this context.

**Susan Halford:** So as an organizational sociologist for many, many years, and not thinking particularly about technology at all, but thinking about organizational transformation of one sort or another.

And I suppose in about the year 2000, I started thinking about digital innovation and organizational practice, and particularly, exploring how digital innovation was changing, or, was imagined to be changing healthcare.

So I was working at that time in Norway, right inside at the Arctic Circle at the Norwegian Center for telemedicine, which is located in Tromso 200 miles north of the Arctic Circle.

And that time, the Norwegian government was making very big investments in digital innovation in healthcare for all kinds of reasons - to do with the geography of Norway, to do with the distributive population, to do with planning for a postal economy and transitions to the services economy in Norway. A high value services economy. And so I started thinking about what the implications of digital innovation in healthcare worth the organization and practice of care, and that became the point at which I realized that sociologists needed to understand much more about technology.

Not only about the idea of technology and the rhetoric around technology, but actually what technologies can and can't do, and how they developed and what kinds of knowledge it takes, and what kinds of performances technologies have

But also that technologists need to know a lot more about sociology.

So that was the beginning of thinking in the socio-technical way. And for me, what socio technical means is the inextricability of the social and the technical. So if we think about how

Bruno Latour interprets it and says that you can't look at the world and say that there is part of social life that has nothing to do with technology and that there is part of technology that has nothing to do with social life, you know they are inextricably unavoidably connected and that's why this word socio-technical is so helpful because it conflates to two and insists that they're joined together.

**Noshir Contractor:** And you talk about socio-digital transformations as an important object of study. Can you give an example of a socio-digital transformation that you have been thinking about?

**Susan Halford:** Social digital transformations at work, say distributed workplaces, for example, like we're doing to some extent now.

And what that means for individuals, what it means for organizations, what it means for organizational cultures, what it means for markets.

So that's a socio-digital transformation. I think we're in the middle of one right now. And I know we're going to come back to covid, but, you know, I was talking recently to a very large UK company, technology company, they moved 8000 people from office work to home work overnight.

You know, that is a socio-digital transformation. You can't do that without digital technologies. But digital technologies on their own, don't make that happen. It's people who every morning get out of their beds and go to their to their laptops and they work as if they were in the office and they manage their children somehow and organizations manage their appraisal and processes and recruitment processes somehow. So that's the socio-digital. You know that you can't do one without the other.

**Noshir Contractor:** That is really an important insight. You've been at the forefront, at least in the field of sociology, and more generally, in the social sciences of making this connection to studying the web. And you are currently involved in a big project on social sciences, social data, and the semantic web.

Tell us what you have been thinking about in terms of the role of big data, the opportunities, the challenges that it offers to advance a sociological analysis of this socio-technical system.

Susan Halford: Well, we tend to these days. I don't know how you - what language you use - we tend to talk about new and emerging forms of data because people have become a little bit tired of big data.

So we are interested in large scale data sets, of course, and then the questions of velocity and veracity and dynamism and so on which people associated with big data. And I think we can't

get away from the fact that these data are really exciting and interesting in terms of the traces that they offer of everyday activities of social life.

And at the same time that they are unfamiliar. They're generated in ways that we don't necessarily understand for purposes that are not social science research.

They're controlled and managed by companies in ways that we don't necessarily have access to knowing what the provenance of the data are.

So my relationship with big data or with new and emerging tools of data is very much one that walks the line between recognizing the huge value of these data for shedding light on social practices in a way that we've not been able to do before and an insistence that we have to recognize the strengths and weaknesses of those data for social research.

So a lot of my work has been in that middle space and refuting the criticisms of some sociologist who will say, "We don't want anything to do with those data. They're not remotely interesting and are not the kind of survey data or interview data that we're really comfortable with. So we're not having anything to do with them."

And the big data evangelists, as I would call them, who think that we don't need anything else; now, all we need is social media data to browser data or sensor data and that will tell us everything we need to know about social life and social practice – which it won't.

So it's walking that middle line and trying to bring sociology and big data and big data methods because for many sociologists – not you, because you're a computational social scientist – but for many sociologists, we don't have those computational skills. We don't know how to work with those data.

So it's about trying to bring the two worlds together in a way that makes the best of what each has to offer and enables us to do research with big data that is really constructive and perspective and valuable.

**Noshir Contractor:** And in your current position as President of the British Sociological Association, you have a really good vantage point in order to be able to make this argument to your fellow sociologists. You use the phrase symphonic social science. What does that mean to you?

**Susan Halford:** So that's a paper that I wrote in collaboration with a very good colleague of mine, Mike Savage who is based at the London School of Economics and it came out of many of these debates about what was the value of new forms of data and computational methods to sociology and a concern that sociologists were

too hasty in dismissing those data and those methods. And the term symphonic came from a recognition that one of the really popular – in fact, the most popular – in sociology publications probably of the last 10 to 15 years were working with diverse forms of data – found data – Data that we're not really contaminants, but didn't really join up in the kinds of ways.

But we're pulling together all these different data sources in order to make a much bigger argument. And that the symphony is the metaphor for that, that you bring in the violins or the cello, or the, you know, other the brass section.

And each of them on their own by something valuable, but together they make something that's greater than the sum of the parts.

And so the three studies that we were looking at with Thomas Piketty's *Capital*, *Bowling Alone*, and the third one was *The Spirit Level* by Wilkinson and Pickett. And all three of those books, although they're very, very different and they're not part of the concertive movement in social science at all. They come from different social sciences, in fact. All of them were doing three things. They were taking these diverse forms of data and pulling them together to do something bigger than the sum of the parts.

And they were using visualizations, in order to articulate that argument. So you could summarize all three of those books with a single diagram, actually, you know, the U shaped curve or the linear regression, whatever it is.

And they were using social theory in order to interpret the data. And so, we were using that, I suppose, as a device to say, look, you know, this is what very, very successful social science projects have done. This is not so different from working with new and emerging forms of data and it's not so different from engaging with computational methods.

It's not the on their own, those things will be the same. But if you combine them with social theory and with conceptual analysis, you know, actually, we can see this as a continuous or a recognizable way of using sociological evidence and making powerful sociological arguments.

Noshir Contractor: And indeed this is what has made website so exciting because it allows us to be able to draw on a very diverse set of methods and measures and address a large broad array of sociological and societal concerns, etc.

Susan, based on your own work, what would you consider as one of the key insights and contributions that your scholarship has made that as of relevance to web science?

**Susan Halford:** I think we've all been building the boat as we row, which is an old Norwegian expression as it happens, of web science. So I think what all of us have done has contributed to making web science, what it is, because we started out with a big umbrella that had nothing underneath it. And we've created what web science is through the things that we have done.

So, I hope that my contribution has been to insist on a critical, in a social science sense, a critical approach to data, to method, to be critically constructive about engaging across disciplines. You know, it's still not terribly common and everywhere there's calls for interdisciplinarity, from funding councils, from governments, from industry.

And yet it's still really quite difficult to do. And I think what web science has done is to really make some big achievements in that area, whether that's studying hate speech online, whether it's studying the activities of states and insight in the cyber realm, whether it's looking at mental health and young people, whether it's looking at delivering healthcare to rural communities.

That's an answer about what I think web science can do. But the key thing, but I hope I've contributed, is in bringing together in-depth sociological research with in-depth computer science research.

**Noshir Contractor:** And speaking of interdisciplinary work, you co-directed when you were at the University of Southampton, the Center for Doctoral Training and Web Science which was funded by the UK's Engineering and Physical Sciences Research Council EPSRC. In that role, how did you take on the challenge of looking at an interdisciplinary training for people who are interested in web science?

**Susan Halford:** Yeah, I think that the Doctoral Training Center was really critical to developing the Web Science Institute, because it threw together computer scientists and social scientists who've never worked together before and said, create a training program, in three months, if you don't mind. And that was a really tall order. And there had to be a lot of learning. A lot of compromise. A lot of collaboration and we did it.

We created a program that was not here is computer science or the better social science on the edge. Not here is social science with a bit of computer science on hand, but that was 50/50

That was absolutely integrating both the social science and the computer science and insisting students who came to us with a background in computing had to read social theory, students who came from social science had to learn semantic web technologies.

Everybody got thrown out of their comfort zone and by the end of the year, everybody had become an interdisciplinary scholar and that was remarkable.

**Noshir Contractor:** That is indeed remarkable. What would you consider as some of the most significant issues that still need to be addressed by Web Science?

**Susan Halford:** I think the future of the web is the most significant issue facing the world today. The fact is, as we know that the web will not stand still.

You know the word is not fixed unfinished or done, the web is changing all the time, and it is absolutely essential that we use that 10 years of experience that we have in web science to address now the future of the web: in terms of ownership, in terms of control, in terms of privacy and security. You know, in terms of human futures, we need to be working extremely hard as web scientists right now.

**Noshir Contractor:** And then in closing, Susan. We are of course going through the COVID 19 pandemic right now and I would like to get your thoughts on what this pandemic would have been and how it would have been different, for better or for worse, if we didn't have the web?

**Susan Halford:** I think, you know, over the past three or four months, probably every day, somebody has said to me, we wouldn't be getting through this crisis if it wasn't for technology. I think, actually, what they need is the internet and the web because we wouldn't be talking. Businesses would have ground to a halt. Education would have ground to a halt.

There would be far worse situations with regard to businesses, you know, at least those ones that have been able to move online. So in many ways, I think that's right - except - as I said to you earlier, it's not just the technology that is allowing us, many of us, to move through COVID reasonably successfully. It is the effort that people in organizations and governments and markets and making to ensure that that happens.

So we couldn't manage in the way that we are without the web but it absolutely underscores that the web is both human and technical

**Noshir Contractor:** I think you made some really important inferences there about how we did have pandemics before the web, but the way the trajectory of those pandemics were quite different from what we're experiencing right now

And as you point out, is clear that the web has definitely changed what a pandemic experience would be like today, as compared to in the past.

**Susan Halford:** Yeah, it has. I think it's also highlighted, you know, there's no doubt that the pandemic is turbocharged digital technologies and thinking about digital technology. So things that weren't impossible but seemed impossible.

Before Christmas, you know, mass online education which disability activists have been campaigning for for 20 years and I've always been told it's impossible. Suddenly becomes possible

And so, that the goal posts have been moved and the goalpost is not going to be pushed back now.

So the question is what do we do with that and how do we treat that in a really constructive way? Because if we look at the push towards data-sharing or towards, you know, apps or biometric passports, or apps for population monitoring and there is some really serious concerns there. And we need to make sure that that movement of the goalposts doesn't allow in all kinds of practices and activities around the web that many of us would find very troubling and worrying for the future of the web.

So, you know, along with the positive, the socio-technical positive, and the things that this pandemic of the web has allowed us to carry on with, we really need to keep that critical scholarly and political attention to the web alive, more than ever, during the pandemic and ensure it doesn't become a Trojan horse for many of the practices or rapid legislative changes, for example, that we really want to see.

Noshir Contractor: Yeah, things that we might be willing to do during a pandemic, or not necessarily the things we want to continue doing post-pandemic.

Susan Halford: Absolutely, and also on that that might include data shown, but it might also include working from home all the time. You know, I think just because people have been able to do it underneath extraordinary circumstances while homeschooling their children and doing whatever else. At the same time, doesn't mean that that is a long term sustainable solution.

Noshir Contractor: Wonderful. Susan, thank you very much for taking time to join us today to share your insights with us, and more importantly, for your thought leadership in bringing into disciplinary approaches to web science. Thank you very much again.

**Susan Halford:** You're very welcome. It's a pleasure. Thank you.

**Noshir Contractor:** Untangling the Web is a production of the Web Science Trust. Thanks to Carmen Chan for editing and technical assistance. I am Noshir Contractor. Thanks for listening.