

Hi, my name is Dan McCarthy. I'm an Associate Professor in the Waterloo Institute for Social Innovation and Resilience here at the University of Waterloo. I'm going to be talking about seeing systems and how systems thinking helps you to understand social innovation and social change.

We believe that the dynamics of complex, adaptive systems can be seen to underlie social, economic, political and ecological systems as well as many of the problems associated with those systems that we see every day. These dynamics can be used to harness social change and social innovation within these systems.

We're trying to give you some of tools to allow you to be a better change maker and to think and see in terms of systems so you can foster change in any kind of system. We'll try to provide you with some tools for mapping a system—your system of interest—and give you a sense of the kinds of structure of that map as well as some of the dynamics that go into it. If you understand these, you can really start to think about change.

These are old ways of thinking, going back to Greek traditions and they're wholistic sorts of approaches. But, they're also new in the

sense that there are a bunch of new theories that have come out in the last 30 or 40 years, which are really informing our understanding of how complex systems work.

Systems thinking is, itself, really a way of looking at the world. It's a lens through which you can view the world, and there are many different lenses. Keep in mind that this is just one lens. It provides some benefits, and perhaps it's a different lens from what many people and institutions use on a daily basis. What makes it different is the fact that it's wholistic, in the sense that it tries to look across scales, sectors, and system types. It ends up trying to emphasize connections. As opposed to reducing complexity and taking things apart, systems thinking and complex adaptive systems thinking emphasises the importance of putting them back together and understanding the dynamics of the whole.

As I mentioned, it's really important to think about this idea of perspective and the fact that multiple perspectives can actually enrich your understanding of a complex system. So, acknowledging diversity is important. I will return to that over and over again. The way you look at a system can change what you're

seeing. Taking or allowing for multiple perspectives will enrich the picture of your understanding.

Complex systems and their dynamics can often appear to be paradoxical. When you acknowledge complexity and uncertainty, people are often confronted by, *"Well that just doesn't make sense and that isn't what I expected to happen. That's not the kind of thing I would expect to be encouraging within a system to foster change."* But, in fact, if you look at through a complexity lens, it makes a lot of sense. I won't mention it that much, but we talk about this idea of bounded rationality. When we put a boundary around things in certain ways, we often don't see how it doesn't make sense outside of those boundaries. Again, complexity thinking encourages you to look at the whole.

The last piece I want to flag is one branch of complexity or one complex adaptive systems thinking, that is, the notion of resilience. Resilience is one approach or lens for thinking about system change in any kind of system. Aspects of resilience thinking that we'll talk about here are things like the adaptive cycle. We'll return to this again and again.