Excelling in network research

Professors Dan Braha and Peter Vervest

Imagine that a major fire sweeps through your main suppliers production plant. Your company is threatened to shut down twenty of its plants for several weeks. General success of the business and your job are on a thin line. What do you do now and what could you have done in advance?

By Ido Ten Bosch & Frederik Wilmes

Toyota recovered from this supply-chain disaster within only five days after such a fire. Toyota’s quick recovery was attributed to their cohesive network structure of suppliers working with them for mutual success. The increasing integration of supply-chains makes profound knowledge about network dynamics more important. A discussion between RSM’s Peter Vervest and Dartmouth’s Dan Braha on this rapidly expanding research field provides further insight.

Networks becomes the way of getting innovations out and to reinvent them on a daily basis.

Why should we care about network research?

Vervest Take innovation! This is also a network related phenomenon. For instance, the technology of Voice over IP was already developed in the mid 90ties and recently a new technology of Voice over IP was already developed in the mid 90ties and recently it was forced to shut this server down. The network itself is the infrastructure for search engines. There are still islands on the internet that is not findable. In theory you can connect to everything to anything, but does that make anything of such networks increases as the amount of users increases. Skype is another example of this!

Braha: I think smartness is the result of an evolutionary process, so maybe another view about being smart is that you learn from mistakes. The industry must have the ability to learn from previous experiences rather than designing everything up front. The agility of a network is thus very important. It is also the ability to react to uncertainties in environment. A good example for this is Napster, the free peer-to-peer network for music downloads. They had a main server, which was the centre of their network. After some legal issues Napster was forced to shut this server down. The network collapsed and was replaced by other peer-to-peer networks with different kind of configurations. This is a good example of a network that was not flexible enough.

How you build purposefulness into networks is an area still unexplored

Braha: There is also an interesting issue related to size. There is a maximum capacity for an individual of how many links one can have and the optimal size of a community. A research on primates discovered a correlation between the amount of braincells of a species and the size of the community. 150 is cited as the optimal size of a network and it makes sense a when you add more links to the network that it will create congestion which will negatively affect the desirability of joining the network. This suggests that there could be an optimum size for technological and social networks, but also smart business networks.

Speaking of which, what makes a network smart?

Vervest: What is smart? It is difficult to speak about smart networks but it is always so easy to criticize stupid networks. Sometimes people work together and nothing comes out. I think it is about creating something that all the network members can appreciate, we as consumers also being a member of this network. That is why creating something like Ebay or Marketplats.nl is so smart because you create a platform for your customers to communicate. They are not part of the network and they may mean nothing if you don’t look at the network. Nodes will try to find links that are beneficial to them, so there will be purposeful behaviour. We need to know more about this.

Braha: We should strive to educate people in a way that reflects how their networks will be. We should have an education system that is more interdisciplinary and we should strive to have managers and engineers that have a broader education so that they will be able to connect different remote areas.

Vervest: The focus is shifting towards networks. Towards creating systems that provide added value. This is totally different of what we train students to think. It or not? If you have a great idea, are you going to tell everyone or are you

Some articles worth reading if you want to know more with business network theory:


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