

# It's a small world

*To find new ways of thinking and doing, you must escape the confines of your own little world and enter uncharted territory. But it may not be as hard as you think, says Dr Leandro Herrero*

**O**ver your second drink at a cocktail party, you meet somebody whose neighbour turns out to be your best mate from secondary school, someone you haven't seen for 20 years. Or somebody who is working with your first boss of many years ago. Or somebody who is married to someone you met at a business school reunion. Or somebody with a holiday home five minutes from yours but you've never met him over there. And you say, "It's a small world."

There is a lot of literature and psycho- and sociological data relating to this phenomenon. In one experiment, Stanley Milgram, a prolific and unconventional American professor, asked random people to send letters to someone in Boston whose address they did not know. The idea was to discern how many intermediaries were necessary to get a letter to them, bearing in mind that you could only send a letter to someone you knew on first name terms.

## Six degrees of separation

Duncan Watts, author of *Small Worlds* (Princeton University Press, 1999), describes it like this: "By requiring each intermediary to report their receipt of the letter, Milgram kept track of the letters and the demographic characteristics of their handlers. His results indicated a median chain length of about six, thus supporting the notion of 'six degrees of separation,' after which both a play and its movie adaptation have since been named."

And then, there is the Kevin Bacon Game, which Duncan Watts describes as "a curious thing to be sure". For those who don't know him, Kevin Bacon is an actor best known for not being the star of many films. But a few years ago, Brett Tjaden – a computer scientist at the University of Virginia – catapulted Bacon to true international recognition with the claim that he was somehow at the centre of the movie universe. This is how the game goes: "Think of an actor or actress. If they have ever been in a film with Kevin Bacon, then they have a 'Bacon Number' of one. If they have never

been in a film with Kevin Bacon but have been in a film with somebody else who has, then they have a Bacon Number of two, and so on.

"The claim is that no-one who has been in an American film, ever has a Bacon Number of greater than four. Elvis Presley, for example, has a Bacon Number of two. For real enthusiasts, Tjaden created a website that provides the Bacon Number and shortest path to the great man for the most obscure of choices. In fact, Tjaden later fireproofed his claim by conducting an exhaustive survey of the Internet Movie Database, and determined that the highest finite Bacon Number (for any nationality) is eight. This may seem nothing more than a quirky fact about an already bizarre industry, but in fact it is a particularly clear example of a phenomenon that increasingly pervades our day-to-day existence: something known as the 'small-world phenomenon'."

So here is a summary of the hypotheses so far. (1) We are all linked to everyone else (I won't win the Nobel Prize for this). (2) We think we live in a small world, a premise that is both true and false. True because we have connections with a finite universe of family, friends and colleagues, so it feels small. False because if you apply the six degrees of separation principle, your community extends much further than you think.

Let me add more hypotheses of my own. In small worlds, the links between people tend to be strong. This mini-network is full of what network theory (an emergent science embracing information technology, sociology, mathematics, politics and any other science the object of which is 'connectivity') calls 'strong ties'. These are as opposed to 'weak ties' – connections with distant or semi-unknown people, those you have never met but have e-mailed or those you have met once and put on your Christmas card list. If you have a thick address book, the chances are that most of the connections are weak ties. But there are many other small worlds or clusters of people with strong ties inside the contact list. You may only have weak links with some of them, but this is your window to their small world.

## A lesson from network theory

Network theory also suggests that our preconceived idea of a network is a multitude of linked nodes, either people if it is a social network, or points on a power grid. Network theory tells us this is a simple way of looking at things and that, in reality, you might visualise the picture better as a series of clusters linked to each other via nodes in each one. These nodes are the network's traffic warden, project manager, dating agent, cartographer, matchmaker and village wise man all in one.

**There are many small worlds inside your contact list. You may only have weak links with some of them, but this is your window to their world**



Illustration by Rob Wilcockson

Stuck in the chain gang: your world is a lot bigger than you think.

The nodes have a high degree of power because they control that linkage.

So, what is between these linked clusters? The name for it is structural holes. If an organisation is a network and follows the rules of network science, then we should be able to see clusters of strong ties and structural holes. And indeed we do. The clusters are called teams and the structural holes are the loose connections between teams or the people who do not belong to teams.

### Same old same

This takes us to more interesting territory. Think about innovation, which requires the ability to spot new ideas and connections between ideas, the quest for novelty, for alternative ways of doing things, out-of-the-box thinking, rule breaking and the need to discover what you don't know. What is the best environment for generating innovation? Conventional wisdom, business school training, management experience and politico-managerial thinking says the best environment is a team. But strong-tie structures may not be a good platform for alternative thinking and discovering the unknown. It can be done, of course, but think of the team's membership: people you know relatively well and work with most of the time, and with whom you have regular intellectual interaction.

It is easy to predict what other team members will think about something. You know John's views and how Peter reacts. You know Mary's

area of expertise and what Carol always wants to do. The strong-tie, small-world-team is highly predictable. You trade the unknown for a cosy environment and the supposed power of all brains together. And if you seek innovation, unpredictability, novelty and knowledge you don't have, you don't want John, Peter, Mary or Carol. They are part of your brain furniture. You want the things you don't know yet, the world of weak ties and loose connections, the management of which was probably absent from your business education.

The world of weak ties is a powerful one for new ideas, and for innovation as an extrapolation of new ideas. In knowledge management, the term 'Community of Practice' (CoP) has been used for a while to describe a more or less spontaneous collaboration between people who are not formally linked to each other by strong ties, such as those in a formal team. It's a more fluid structure with an inconstant membership and the members' level of participation ranges from elusive to visible. Theoretically, if you want to find innovation, this is the structure you should adopt.

### Strong ties versus innovation?

I am not trying to establish a categorical bimodal organisational world: teams with strong ties and predictable behaviour on the one hand, and CoPs with their weaker ties and greater innovation potential on the other. The risk of bimodal thinking is that it leads to a bimodal worldview – no innovation in teams, innovation in CoPs. This is not quite what I mean. But let me reframe the issue.

There are undoubtedly two overlapping organisations within your company. One represents the designed part: teams, structures, committees and reporting lines, usually represented in an organisation chart (organigram in some countries). The other is a constantly emerging part with loose connections and ties, and where network theory is the best-kept secret in management. The balance between the two defines your organisation's health. At one extreme, over-designing and over-structuring will kill innovation and knowledge flow. At the other, a loose, ambiguous and rather unstructured organisation may be unmanageable, if – and this is the trick – you are a manager grown and groomed in the designed part, and unable to navigate and lead in the more ambiguous and network-centric organisation. More to come, and this is a promise. SM

•Dr Leandro Herrero writes on a management topic each month in Scrip Magazine. He heads *The Chalfont Project*, an international professional services firm specialising in organisational consulting for the pharmaceutical industry. *The Trouble with Management – a collection of Dr Herrero's Last Words – can be purchased from PJB Publications at a cost of £25.00/US\$52.50/¥4,750. To order, telephone +44 (0)20 8332 8889.*