We have had worldwide significant acceleration of productivity in the market sector of the economy in the past decade or so, a lot of different factors coming together there, with a lot of the innovation coming from the Internet and from associated things. That contrasts with a long period when transport was the focus of innovation. When we talked about periods in the nineteenth and twentieth centuries, where we talked about the steam or railway age, the jet age, and so forth – it was modes of transport that were really distinctive. The last major innovation in transport that made a big difference was the Jumbo jet pioneered by Boeing in 1967 and in 2005 we saw the next big innovation in travel, A380 Jumbo jet, produced by Airbus of Europe. That is what 40 years or so of progress in transport has produced. If we look at the other things, railways and motor vehicles, we will see even more incremental changes over that period. The important thing about transport is first, it is the embodiment of innovation. It is the jet itself that matters and the process that produces it is a traditional one – of getting lots of people and a traditional organisation to work together to produce a collective outcome.

One of most important things that the Internet has given us since 1980, both in terms of economic and non-economic activity, like email and the Web, is electronic commerce. Just as important, is the capacity to find what is out there in the world of knowledge, represented most obviously by Google, but also by all sorts of other tools now associated with things like RDF and RSS. Ways of distributing information that are not as passive as putting up a page and waiting for Google to find it, and the ideas of the Semantic Web and so forth that are associated with that.

Importantly, most of these innovations were pioneered outside the market sector. The Internet was entirely non-commercial up until 1992 and remained predominantly non-commercial for a few years after that. Of course in the late 90s it was discovered by business and literally hundreds of billions of dollars were poured into various forms of innovation. What is striking is that that really did not produce very much. The new exciting ideas, to me at least, are things that continue to be done in the background during the dot com boom – things like blogs and wikies which highlight the economics of networks and the economic concept of public goods.
First, innovations on a network are naturally non-rival. That is, if I improve a network naturally the improvement for me is improvement for everybody else. There is no sense, unlike ordinary goods where more cake for me is less cake for you. The other feature of a public good in economics is excludability. That is, can I stop somebody from getting access to it? Those are just two different things. A song is non-rival: my listening to it does not affect your ability to listen to it. But if I have got the right sort of copyright regime I can say only somebody who buys the record can have the song.

In general it is hard to exclude users without losing access to the full scope of the network, and we saw this with the rise of the Internet itself. The Internet was not the only network that was set up to tie computers together. There were a whole bunch of commercial networks set up at the same time which tried to keep people out, people who had not paid Delphi and others. The only one of those that survived the modern day even as a name is AOL (America On Line) and the only reason America On Line survived is because it took the decision in the mid-1990s to connect up to the Internet, and it still tried to wall its own little bits off. It tried to get the best of both worlds and maybe for a few years did so, but in the end has largely given up, so that these days there are not many walled off sections of the Internet because the attempt to do that cut you off from too much.

In the world of newspapers, lots of people tried subscription models. The only people who have done it successfully are financial papers, where there are plenty of people with a willingness to pay to access the content and not that much interest in the network as a whole. Now, this was one of the reasons I was very keen to come here was to hear Larry Lessig talk. One of the things that I really liked in his books is the distinction between centralised and end-oriented networks. They are both very important and we can see important examples of both of them and they have different sorts of properties for innovation.

Traditional telephony is a centralised network; everybody gets a connection to the central switchboard. They are then switched through to the person they want to talk to and if you improve it, what you do is make that central switchboard work better. You get rid of the operator who spoke to you and plugged in the number you wanted. You replace that with an automatic switch. You put in additional services that you can access by pressing the right numbers. The network as a whole is a public good and the important feature of this is that the innovations in a centralised network are automatically available to all. No particular effort is required on the part of the telephone company once it is made the service, to make that service
available to every single user. Sometimes there might be some need to improve the connections in the network but in a symmetrical network there is no problem. This can be seen as exclusivity – the network owner can say only people who pay can get the improved functionality – but in essence the process is largely automatic and the cost can be recovered through pricing systems because excludability is typically relatively feasible.

The other sort of network is end-oriented network, where most of the action is going on at the end. Most of the intelligence is at the end and the network itself does nothing more than the bare bones of connecting people and the Internet is the paradigm example of an end-oriented network. At the centre of it, to the extent there is a centre, there is nothing more than a set of protocols that turn generalised bits of signals into, or transmit generalised signals from, one part of the network to another. All the action of turning those signals into web pages is done at the end. It can disseminate distributed innovations from widely separated sources. The most famous example of this, but in some ways a misleading one because various particular sorts of motives come into it (it opens all software), is the paradigm instance: Linux.

More interesting to me, because I am not a programmer although I am a writer, are things like newsgroups, weblogs and wikies in which text information from a wide variety of sources is combined, circulated and remixed. In the process, new ways of handling that information, new ideas about how to do things, are also disseminated. People come up with different ideas for what will be a nice way of organising blogs for example, web logs. Should we have group web logs? How should we run comments, and so forth. Those things are distributed around the network but this is not nearly so much an automatic process.

First, it is generally impossible to recover costs. If I am work hard on writing code that will make my web log look prettier, I cannot as a general rule get much of that effort back, certainly not from other people who might want to copy my innovation. I can keep it a secret to some extent. The methods of trade secrecy are still out there, although they do not usually work much. In this whole area it is fair to say that patents have done more harm than good.

We heard about IBM licensing a bunch of its patents. When a patent in this kind of area, like a company like Scode, that has supposedly got a few lines of its code allegedly has snuck into generalised code, not stuff that is of any importance, just stuff that happens to be there. They are then using that to
essentially try and extract rent from a wide variety of people who have contributed their effort for nothing.

Or, when I think of copyright, I think of the Church of Scientology trying to prevent its activities being publicised by use of copyright control over its works. It is fair to say they are not trying to get money. It is fair to say that these traditional methods of IP in this text area have not done any good whatsoever. There is much more of a trade off in, say, music and film than there is in these text-based areas.

This notion of social capital has been very big for the last decade or so with economists and social science, popularised very much by Robert Putnam. First of course, capital, physical capital, is machines and so forth. Economists analogised that to knowledge in peoples’ heads, human capital, around about the 1960s and the old economic category of lands has been churned into natural capital, stuff that nature provides us. Unlike these things though, there is no clear characterisation of investment in social capital. Second, social capital itself is a type of distributed network. If we think about human capital, my human capital is the knowledge in my head. That is pretty straightforward. If I walk out and get hit by a truck, my human capital is gone. Social capital is not like that; social capital is to do with my relationship with other people. It is not me. It is not them. It is in the relationships. It is very much a network kind of good.

It has been something which economists and social science has been tearing their hair out about. We have recognised the importance – it makes a big difference to economic performance. But trying to measure it is incredibly difficult. One of the features of the Internet is that we can, in important respects, measure it because connection is what the Internet does. I can tell you right now how many people linked to my web log, how many people did so in the last day, what those links said, whether they gave me good or bad social capital. That kind of measurement and observable creation is much more pleasant in the Internet context than it is when we talk about, do I trust people in the street? Am I, is my community, socially working or not?

There are lots of different reasons why people might invest in social capital. Some of them are much more pleasant in, for example, open software, for example, a desire to exhibit your technical mastery. That is a very specialised field. This notion of gift exchange is very big there, whereas in other areas it is something like self-expression. It is much more important, or altruistic. The important point I want to make about these
distinct motives is that most of them are compatible or mutually reinforcing. If I am thinking about writing a piece of code for Linux, or I am thinking about a way to improve a web log and making that available. Partly I want everybody to admire me and think how clever I am, partly I want to help my fellow bloggers or Linux fans, and partly because I just like doing it and, having done it, so I might as well share it. Those things all fit together pretty well. On the other hand I would argue most of the time market rationality is antagonistic to these motives. If I am doing this and thinking what I am going to do is come up with this idea and then sell it, if I am a good businessman, I do not let considerations like altruism or gift giving get in the way of doing business. If I do, I will be exploited. I need to calculate exchange values carefully because otherwise I will persist with money losing lines of business and I need to be worried about arbitrage.

One of the magic features of markets, as opposed to small scale communities, is that if you can find a way of making ten cents and repeat it a zillion times, you have got 0.1 of a zillion dollars. What that means is that if I am behaving in a non-market rational way when there are other players out there who have the market in mind, I can be taken down very easily and I need to guard against that.

We commonly say, “that is business”. You are expected to a large extent to feign your motives in business. The person who sells me a car is expected to treat me as if they like me, regardless of what they might think about me. I would be offended if they honestly said, “you are the stupidest person I have met today”, or the ugliest, or something. Even if they showed us by the normal ways in which a polite person would say, “well, I do not really like you, but I have got this car, you have got money, let us get this over with”. Now bureaucratic rationality is also problematic, in some ways for the opposite reason. Although we do not like it, it is not so much there that we do not want these kinds of motives used against us. The last thing I want to see is the person in front of me walking up to the bureaucrat who says, “you have a pretty face” or “you are a member of the same club as I am. You will get your request approved”, and then I do not get my request approved. We do not want notions like gift exchange in bureaucratic processes. It has another name: corruption. These kinds of motives are very hard to fit into this world of creating social capital.

What are the implications? Well first, the one we have heard about already is the Commons versus intellectual property, that there is a conflict here. The implication is we need to move, that the changes in technology need to
dictate a move more towards the Commons and away from intellectual property. The second, a vague sort of term, but some content can be given to it – we need to focus more on creativity and less on rationality. As a professional dealer in rationality that is maybe not such a good thing for me. There is the implication that the kind of rational processes that have dominated public debate, particularly in Australia, in the past 20 years, are not going to be well suited to promoting creative innovation. A supporting rather than a leading role for the State is implied. The state, after all, funded the creation of the Internet and did lots of good things, but it’s unlikely that state, that centralised state activity, is going to play a leading role.

Finally, a relatively peripheral role for market activity, is to see the market sector retreating from being the centre of so much innovation and instead picking up on innovations that have been generated outside the market sector, or to a lesser extent, users, rather than being generated within firms.