



Present assumptions

There seems to be a growing assumption that universal broadband connectivity will drive future economic growth.

In common with other nation states, the US and the UK have ambitious plans in place to roll out next generation networks that will allow us to work rest and play at a new level of efficiency and intensity assuming that this is what we want or need to do.

The release of the final [Digital Britain](#) report by the UK government later this month will probably articulate the ambition but will be non specific on where the funding will be found.

Historical precedents - return on infrastructure investment time scales

There are many past examples where infrastructure investment has been considered as critical to achieving economic, social and political progress.

When technology innovation has coincided with an ability to raise capital and an appetite for risk then the change can be dizzyingly fast. The canals and railways of Victorian Britain were an extreme example. Over the next one hundred and fifty years, telegraphy, telephony and telecommunications grew out of a similar mix of invention combined with private and public investment.

The return on that investment can be very long term. [Passenger numbers on the railways](#) for example are presently increasing rapidly in the UK.

Most train journeys cross a nineteenth century bridge or embankment.

Investment benefit time scales of this order are difficult to reconcile with conventional investment horizons. Railway planning is best done over thirty to fifty year time scales and telecommunications should arguably be the same.

Conveniently thirty to fifty years is coincident with the average working and earning life span, a fact that makes or should make infrastructure investment interesting and relevant to pension fund investors.

Australian pension funds have embraced this opportunity with some enthusiasm but most other countries remain focused on shorter term returns.

Telecommunications and Economic theory

Economic theory when applied to telecommunications unearths some other puzzling contradictions and apparently under exploited opportunities.

For example, it could be argued that speed equates to value.

This is of course depends on the fiscal cost of achieving the speed. This may include environmental cost - Concorde comes to mind. It also depends on the additional value achievable from additional speed. Canal journeys may take longer but may be more efficient and in some instances the net gain over faster alternatives, for example trains and lorries, may be greater. If the commodity being transported is increasing in value over time, the longer it takes to get there the more it will be worth.

But surely the canal analogy cannot be applied to the economic theory of telecommunications?

The benefits of broader band telecommunications must surely outweigh investment cost?

Well that depends on the economic scale of the benefit and the time scale required for a return on the investment.

If the cost of delivering broadband to rural areas could be amortised over 50 years, effectively what happens with telegraph poles, then almost certainly a net gain will be achieved.

If the cost has to be amortised over five years then almost certainly it will not.

This explains the present lack of appetite for private sector broadband investment.

It also implies a need for a longer term plan.

Technopolitics in Malaysia - an example of long term planning

During his twenty year rule of Malaysia, Dr Mahathir Mohammed championed an 'Information Super Corridor' from Kuala Lumpur to Penang, the basis for a thirty year ['20 20' plan](#) to transform Malaysia into an Asian economic tiger.

It could be argued that such a policy was credible only as a result of very positive Asian investment sentiment which proved in the case of Malaysia to be unsustainable at least in the shorter term.

The policy did however achieve a cultural shift which included greater emphasis on electronics engineering education and a gender neutral approach to engineering recruitment, an example which the UK and other countries could usefully follow.

The UK as an example

Harold Wilson attempted something similar after the 1964 British election.

The ['White Heat of Technology'](#) would rescue Britain from industrial decline. The British political process more or less guaranteed that this ambition would be frustrated. Autocracy may have been the missing ingredient here.

Forty five years on the question we seem to be asking ourselves is a reworking of the Wilson mantra - will the White Heat of Telecommunications Technology rescue

Britain from industrial decline. After all if Britain can be set on the road to recovery simply by putting in some broadband investment then just think what could happen elsewhere in the world.

The answer of course is that investment in broadband connectivity is only part of the solution.

There is a parallel need to invest in the education of a new generation of telecommunications engineers and a need to invest in the R and D and manufacturing capabilities needed to bring new telecommunication technologies and techniques to market. These are needed in order to reduce costs and increase added value. This is needed to reduce return on investment time scales. A virtuous circle within a virtuous cycle.

The same principles almost certainly apply to other national economies.

The only difference is that it is challenging to create a nationally specific source of telecommunications engineering expertise from a virtually zero start point.

The advantage of an autocracy?

Not impossible but difficult. [Dr Mahathir](#) achieved great things in Malaysia

However he was in power for over twenty years and had a slightly alarming habit of imprisoning his enemies and former political colleagues, [some of whom](#) remain in prison today.

Similarly China is creating a potentially world beating home grown telecommunications R and D and manufacturing capability at a speed that is probably only possible in a closely coupled politicised command economy. India could potentially do the same though political and industrial policy making in India is traditionally rather elliptic.

UK, US and ROW (rest of the world) implications

So what does this mean for the telecommunications industry in the UK, US and rest of the world?

It seems unlikely that either the UK or US will adopt autocracy as an acceptable method for accelerating technology investment though given the state of present UK politics you can never be too sure.

Liberal democracies are not immune to the occasional miscarriage of justice but a whole scale abandonment of the democratic process might be a step too far. The end does not always justify the means to the end.

Collaborative initiatives that bring common interest countries together are one alternative but recessions tend to increase national self interest - the car industry being a present stark example.

So we are forced back to seeing what we already have and whether we can make

better use of what we have.

Theoretically the UK should have a legacy advantage.

In radio communications for example, the UK was one of the first countries to implement digital mobile GSM networks, the first country in the world to implement digital broadcasting with the launch of DAB in 1995 and DVB-T in 1997, and one of the first countries to introduce digital two way radio.

The UK presently hosts the world's largest TETRA based public safety network. The UK will be one of the first countries to implement DVB -T2 broadcasting and has a leadership role in LTE standardisation.

A UK company directly supports nearly 300 million cellular subscribers internationally and has a track record of technology innovation that has delivered global competitive advantage.

We have several UK companies that are world leaders or at least potential world leaders in radio and telecommunications silicon.

The UK undertakes internationally acclaimed fibre optic research.

The UK is surprisingly good at designing and making and occasionally launching low cost satellites.

Depressingly this is probably not enough.

It is remarkable how easily national technology resource, the engineering collateral of a nation, can be squandered as a result of political paralysis.

Political inefficiency may be the price that we pay for living in a democracy and if so we should just accept the fact that free will is not free but comes with a cost attached.

Even discounting the direct and indirect 'cost of democratic governance', developed nation states have high running costs that are a consequence of quality of life expectations compounded by other factors such as a perceived need to defend themselves or a usually misplaced desire to invade other nation states.

In this context the concept that any developed nation state can survive as a predominantly service economy must be open to question.

By implication the UK needs a broadband technology economy rather than a broadband service economy. A broadband technology economy should be intrinsically efficient at realising a return on legacy R and D and manufacturing investment.

So back to the assumption that universal broadband connectivity will drive future economic growth.

This is almost certainly true but the problem is that we have no obvious way of getting

to where we need to be.

The return on investment is not sufficiently attractive to bring in private investment and public cash is not presently a viable alternative.

The UK has the advantage of a one hundred and fifty year legacy of telecommunications R and D and manufacturing investment. It therefore makes obvious sense to couple broadband connectivity investment policy with telecommunications industry investment policy.

Countries such as Germany, Canada, France, Italy and the US are in a similar position.

An economic model which somehow aligns and combines these interests is probably the best and possibly only way forward.

The role of telecommunications in emerging economies

In emerging countries, telecommunications has a different though no less profound role to play. The provision of micro trading and micro finance over cellular networks is one example of the potentially transformative power of low cost and not necessarily broad band connectivity. [Slow can be valuable.](#)

The Telecommunications Economy - a broader view of Broadband

It is therefore useful not to get over focused on a broadband debate but to take a broader view of the role that telecommunications and the telecommunications industry can play in developed and developing economies.

Developed economies often have legacy telecommunications R and D and manufacturing investment which should be nurtured and nourished as a national resource. Telecommunications R and D and manufacturing in these countries is not the problem but the solution to the problem.

Emerging economies do not have this advantage but have the potential to make rapid economic progress with telecommunications as the essential facilitator - a telecommunications economy rather than a broadband economy.

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