

## The Nottingham Economic Recovery and Renewal Consultation - Part Three

To continue the argument about the place of arts and culture in an economic development strategy.... Artists and authors are almost always poor so it is odd to put them at the head of an economic strategy. There is evidence for this from a recent study by the Institute of Fiscal Studies. By and large if you go to university you usually ended up better off financially – but not everyone. One in 5 students would have been better off financially by not going to university. Guess who they were!

Net discounted lifetime returns for women are close to zero on average for creative arts and languages graduates, but more than £250k better off for having taken law, economics or medicine. Men studying creative arts have negative financial returns, while men studying medicine or economics have average returns of more than half a million pounds.

<https://www.ifs.org.uk/publications/14729>

Considering these figures, the idea of putting artists and writers at the cutting edge of economic development seems odd.

Or does the Growth Board and One Nottingham mean to focus their support on arts administrators, as well as publishers and digital publishing platforms, and the managers of venues like museums who manage who and what gets noticed and gets attention? There is a difference – arts administration can be run in such a way that generates little or nothing positive or relevant for local communities, and instead favours visiting international stars on celebrity circuits with esoteric messages about their creations written up in incomprehensible pretentious texts.

<https://artybollocks.com/generator.html>

Is this the sort of thing that the Growth Board have in mind when they write of a programme for “A City of Creativity and Culture”? To me it looks like more money for big organisations, big venues and big events to bring visitors to Nottingham – its an extension of the consumer and tourist economy which is currently failing. Why should people visit Nottingham for this kind of thing if they are hard up? I don’t get it. It assumes a market of visitors with purchasing power. In other words it appears to assume the very prosperity it claims to promote.

Artists are not often rich but money is not everything in life. You are likely to get a lot of other benefits from the creative arts and languages – and from studying history too. The quality of your life may be much higher – not least in developing the ability to live a satisfying life on a low income. Indeed there is a lot of psychological literature about what motivates people and life satisfaction. When people are motivated by money, fame, celebrity then psychologists describe them as being driven by extrinsic goals. People like this are dependent on the approval of others for what they consider success. Some psychologists call these kind of people “marketing personalities”.

In his book **Affluenza** Oliver James repeats the findings of Saunders,

*“Marketing characters experience themselves as commodities whose value and meaning are externally determined.”*

*Such characters have the following traits: ... eager to consume; wasteful of goods, disposing and replacing them frequently; having conventional tastes and views; uncritical of themselves or society, un-insightful; agreeing with the statement “having makes me more”; a tendency to publicise and promote themselves; experiencing themselves as a commodity whose value is determined by possessions and the opinions of others; and with values portrayed in television advertisements. (James, 2007)*

*Studies show people like this are more likely to be “materialistic, conformist, unconcerned about ecology, expressive of anger, anxious and depressive.” A subsequent study by Saunders, again cited by James, explains how marketing characters:... place little value on beauty, freedoms or inner harmony. Their main pursuits are social recognition, comfort, and having an exciting life. They are extremely individualistic in their social values and do not regard social equality as desirable. They compare themselves obsessively and enviously with others, always having to have more and better things than others, believing inequality to be man’s natural state. (James, Affluenza, 2007, p. 66)*

At the age of 72 I know and have known a few artists and cannot think of one who was a “marketing personality” even though they needed or need the approval of others to be successful, and I wonder whether the artists have the right kind of personalities to pursue the economic growth goals – because they are not generally like this. To be successful they must produce in a way that others will appreciate for authenticity which has to come out of them – not them trying to second guess what will please most consumers in a standardised market.

To conclude this theme. In 1996 I worked for 6 months at the Bauhaus Dessau Foundation in East Germany in a sabbatical job trying to convey to the Bauhaus staff how to do community development work. In the 1920s and 1930s the Bauhaus had been a radical school of design, architecture and town planning in an area that was booming with new industries – like aero engineering and chemicals. The industries being developed after World War One were seen as an opportunity to bring utopian new living arrangements and products to a mass market. How the settlements, buildings and interiors were to be designed was seen as a job for all round artists, designers, architects and cultural activists.

The building in Dessau where this happened was designed by one of the Bauhaus architects and its most famous director, Walter Gropius. It survived the bombing of Dessau in world war two and became a working museum. After German reunification it looked for ideas as to how to participate in a redeveloped regional economy. I took part in some of the discussions. What I took away from my experience working there is that art, craft, design, buildings, land planning and the production economy are on a continuum.

They cannot and should not be artificially be separated.

However I also took away something else – namely that there are limits to an economic strategy devised by people who work in museums who want to turn every old building or feature into a museum to attract tourists. Turning brown coal power stations into museums of power station design and open case coal excavators into giant sculptures has very little economic development potential. Re-designing Nottingham castle has some potential but not very much.

As regards Nottingham let’s get real and remember that although D H Lawrence and Alan Sillitoe wrote about Nottingham they did not stay here – they left it. Lawrence wrote ‘It was a world of iron and coal, the cruelty of iron and the smoke of coal, and the endless, endless greed that drove it all.’

Nevertheless.... an economic strategy related in some way to the work of artists, authors, musicians who have managed to live meaningful lives although poor in a material sense makes a kind of sense to a community trapped in an economy in decline.

Artists have a keen eye for materials and have skills in shaping materials. A feel for the craft dimension of their art, might do well in the near future for participating in the revival of forms of artisan production that become relevant during a period of economic crisis.

Tim Morgan has a keen sense of how the production economy is likely to change in the next few years and writes of how

.... “ *the World economy has become a **dissipative-landfill system**, using energy-profligate processes to transform raw materials into products which, for the most part, are rapidly abandoned to landfill or other methods of disposal. This is in stark contrast to the craft model which prevailed before the Industrial Age, when the balance between energy-derived inputs and human skills was very different, and in which the quality of goods, and certainly their durability, was rated a lot more highly than it is today.*” <https://surplusenergyeconomics.wordpress.com/2020/12/08/186-the-objective-economy-part-three/>

In circumstances like these some artists are proving that at the grass roots they are able to adjust flexibly. For example at the studios at Primary local artists have allied with artisan food producers. The Small Food Bakery at Primary has made links with local farmers and food producers in a way that helps re-localise food production, supports a local food culture, reduces the length of supply chains, bring down energy use and makes a start in making Nottingham more self sufficient. In the kind of crisis that we face this example is invaluable – the fact that it is happening at an artists’ collective is hugely significant.

In the economy of Nottingham in the near future, a good economic development indicator would be how many people are using food banks. To get the numbers down we need to think about the food economy. Artists on Ilkeston Road are doing that – the Growth Board and One Nottingham are not doing that. One up to the artists I say.

### **Change of subject – How to create a real city of rebels....**

The consultation document invites us to celebrate Nottingham as a city of rebels... If we are going to approve of rebellion then what should we rebel against now?

Without any irony I propose that we rebel against economic growth. I think it is coming to an end anyway because we have reached the limits of economic growth – but in any case the promotion of economic growth is unethical and I would like to explain why. I write as someone with two degrees in economics.

Economics was originally a branch of moral philosophy so let us return to its roots – as in when it was taught by monks who had taken a vow of poverty. (Long before Adam Smith, himself a professor of Moral Philosophy, St Augustine and St Thomas Aquinas also taught economics ).

Why is the pursuit of economic growth not ethical? As I recently argued in a critique of my Alma Mater, the University of Nottingham School of Economics:

*While most economists have been complacently ignoring their critics some real scientists have been doing real world measurements about the state of the biosphere. One such is ecological footprint analysis, a methodology devised by Matthias Wakernagel. This is the amount of biologically active land and sea needed to provide the resources and absorb the wastes and pollution of our lifestyles. Using this measure we know that the global economic system is using land and sea as if we had 1.7 planets. Of course we have only 1 and the 0.7 planet is a measure of overshoot. It’s a measure of the amount we are overusing the biosphere and degrading it – producing climate change and species extinction. An analogy from domestic economics would be consuming more than income by running down savings, running up debts and not maintaining the windows and roof that are about to fall in.* <https://www.mdpi.com/2079-9276/7/3/58> and <https://www.feasta.org/2019/10/03/the-school-of-economics-as-a-suicide-academy/>

## **Digital Technologies have a Monster Carbon Footprint**

Because digital technologies have a monster carbon footprint the climate goals of the Growth Plan are at odds with the Digital part.

Over the course of the lockdown people have increasingly turned to contact through computers and the internet instead of travelling to share offices and shared spaces where people meet and work together. Surely this has saved energy?

It is not so simple because this change in working arrangements also has a carbon footprint. Unless this carbon footprint is taken into account it will make it difficult, if not impossible for Nottingham to be zero carbon by 2028.

It simply does not follow that a “smart” digital revolution is good for the environment. The fact that components like microprocessors are very small can give the misleading impression that the energy used in creating the infrastructure and processing the materials to create those components is small.

The contrary is the case – to create and control the manufacturing environment in which precision micro components can be produced and assembled requires a great deal of energy. Many materials for this and complex parts also have to be assembled from all over the world with a further huge energy usage in transport, communications and logistics. When you take all of this together the energy consumption is enormous. One study found that the internet consumed 1,815 TWh of electricity in 2012 – which corresponded to 8% of global electricity production in that year. 7 years later one measurement was that it was then 10% of global electricity. The 2019 study also predicted further growth – more than total energy production from wind and solar.

*Best-case scenario sees a growth from 1 982 TWh (terawatt hours) per year, expected scenarios sees it go up to 2 547 TWh per year and worst-case scenario sees numbers go up by 3 422 TWh a year.*

*This equates to an expected 10% increase, with a worst case scenario of 13,5%. Whether or not the electricity consumption goes up by the former or latter estimation, this is still more than the world's total energy production from renewable sources such as wind and solar, which provide only an expected increase of 2151 TWh per year.*

<https://insidescandinavianbusiness.com/article.php?id=356>

It is true that, as we have experienced in the lockdown, computer communications replace travel and thereby transfer a lot of energy use from transport to internet. If there is any saving, the money that would be spent on the energy typically gets spent on something else –which also involves a different kind of energy use. This is the called the rebound effect.

At the current time, money saved by people working at home will not only reduce travel expenses for employees, it will reduce the expense of heat and light (and rent) for office space by employing organisations. But that money saved will not sit idle. Indeed the Growth Board would not want it too – the Growth Board want a growing economy, so if companies can save money by new working practices which reduce energy consumption then they will favour the use of that money for something else that will increase energy consumption somewhere else – perhaps in upgrading their digital infrastructure.

<https://www.lowtechmagazine.com/2015/10/can-the-internet-run-on-renewable-energy.html#more>

Unfortunately upgrading the digital infrastructure will be bad for the planet and contradicts the policy aim of making Nottingham Green and Sustainable.

In an article in the Guardian something over a year ago Ben Tarnoff argued that putting computers everywhere is bad for people and planet. He gives machine learning (ML) by digital computers as an example. ML is claimed to be an important tool for “big data applications”. For example, to learn to recognise a face computers must learn by looking at millions of pictures of faces but:

*“This is a demanding process. It takes place inside the data centers we call the cloud, and much of the electricity that powers the cloud is generated by burning fossil fuels. As a result, ML has a large carbon footprint. In a recent paper that made waves in the ML community, a team at the University of Massachusetts, Amherst, found that training a model for natural-language processing – the field that helps “virtual assistants” like Alexa understand what you’re saying – can emit as much as 626,155lb of carbon dioxide. That’s about the same amount produced by flying roundtrip between New York and Beijing 125 times.*

*Training models isn’t the only way ML contributes to the cooking of our planet. It has also stimulated a hunger for data that is probably the single biggest driver of the digitization of everything. Corporations and governments now have an incentive to acquire as much data as possible, because that data, with the help of ML, might yield valuable patterns. It might tell them who to fire, who to arrest, when to perform maintenance on a machine or how to promote a new product.*

*One of the best ways to make more data is to put small connected computers everywhere: Cisco predicts there will be 28.5bn networked devices by 2022. Aside from the energy required to manufacture and maintain those devices, the data they produce will live in the carbon-intensive cloud. Data centers currently consume 200 terawatt hours per year – roughly the same amount as South Africa. Anders Andrae, a widely cited researcher at Huawei, tells me that number is likely to grow 4-5 times by 2030. This would put the cloud on par with Japan, the fourth-biggest energy consumer on the planet.”*

<https://www.theguardian.com/technology/2019/sep/17/tech-climate-change-luddites-data>

If "renewal" and "recovery" goes back to this then it is not a sustainable process environmentally. You can see a total failure to understand this in the renewal document. Each time energy is saved so is the expense – hurrah – but what is the saved money then spent on? The document is oblivious to this important question – even though economists have been aware of it since William Stanley Jevons wrote a book called **“The Coal Question. An Inquiry Concerning the Progress of our Nation and the Probable Exhaustion of our Coal Mines”** in 1865.

What Jevons pointed out was that energy efficiency did not reduce the demand for coal, it increased it. When you save energy, money is saved and spent on something else and you get expansion. Nor is this only the result of redirected purchasing power. When you make the computer chips that are in mobile phones more efficient so that they can work with more computing power, simple mobiles are superceded by smart phones and energy consumption goes up too. Everyone knows that a smartphone is an energy guzzling device that you have to keep charging. But it is worse than that – there is a complementary need for more energy in the “cloud” and all the back-up infrastructure too. That’s growth for you – and it’s killing the planet. That’s a 21<sup>st</sup> century ethical issue.

So every time you want growth, growth, growth you encourage the use of more energy and emit more carbon. In Nottingham you are further away from the City 2028 zero net emissions target.

It is of course totally predictable that the politicians and members of the Growth Board will want to argue that it is possible to decouple growth from more carbon emissions. Not long ago that idea was studied in great depth in a literature review by the European Environment Bureau. The EEB authors looked at 99 peer reviewed studies. What they found is that attempts to decouple growth from resource use (including fossil fuels) and pollution (including greenhouse emissions) have failed and will continue to do so. The problem is so serious because the economy is already too large, as explained above. Here is the EEB web link. Study it for yourself. If you have an answer I would like to see it. If not, admit that the whole raison d'être of the Growth Board is unethical.

<https://eeb.org/library/decoupling-debunked/>

It is not just climate change that would be a problem. Plenty of other things will be too. In recent years the PR strategies of the technology corporations have hyped "smart cities" and oversold their benefits and under-studied their problems.

But is it not true that smart technologies will be good for the environment? Not for insects it would seem. As most people, know bees are dying off in great numbers and there are suspicions about insecticides. However radio frequency electro magnetic fields are also suspected. (It may not be either/or but both ). As a study in the Planetary Health supplement of the Lancet points out.

*“Evidence also exists of the effects of radio frequency electromagnetic radiation on flora and fauna. For example, the reported global reduction in bees and other insects is plausibly linked to the increased radio frequency electromagnetic radiation in the environment. Honeybees are among the species that use magnetoreception, which is sensitive to anthropogenic electromagnetic fields, for navigation.”* ( Taye RR, Deka MK, Rahman A, Bathari M Effect of electromagnetic radiation of cell phone tower on foraging behaviour of Asiatic honey bee, Apis cerana F. (Hymenoptera: Apidae). J Entomol Zool Stud. 2017; 5: 1527-1529 ) Quoted in [https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196\(18\)30221-3/fulltext](https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(18)30221-3/fulltext)

So 5G as part of a digitalisation strategy in Nottingham is NOT compatible with a bee friendly environmental strategy. It would be pretty toxic to people too – see the Lancet supplement just cited for links to plenty of peer reviewed evidence....

The “green argument” for smart cities is that smart grids and smart mobility will complement and enable renewable energy systems and electrified and self driving vehicles. It is an argument that the intermittency of solar and wind energy will be better managed by smart systems that will enable switching on power use when the wind is blowing and the sun is shining so that energy is flowing in the system. Or again, smart grids will enable household producers of solar power to better manage their energy use and the power generated from the panels on their roofs. Such people will sometimes take additional power from the grid and at other times sell surplus power to neighbours when the energy generated in one house is surplus to need and a neighbour wants to buy it.

There are circumstances where this might make some sense. For example the film **2040** draws on the experience of villagers in Bangla Desh. It makes out a case for the bottom upwards development of grids connecting neighbours. At a low level of electricity demand and where solar panels are powered by the sun nearer the equator, local grids like this already exist and function successfully. In gloomy Britain where the demand for power is a lot higher, the situation is different.

No smart grid is going to solve the problem of a seasonal mismatch between demand and supply for electricity in the UK or in Nottingham. Here the problem is that when power is needed most – eg

for heating – it is not in the same season when most power is generated by wind and solar. The issue here is that there are no cheap ways of storing substantial amounts of energy between seasons. Even the biggest and cheapest energy storage solutions – compressed air or pumped hydro – cannot store more than a few hours' supply and computer systems are irrelevant to that.

Using US data author Alice Friedmann shows why energy storage between seasons is a non starter: *“A lithium-ion battery designed to store just one day of U.S. electricity generation (11 TWh) to balance solar and wind power would be huge. Using data from the Department of Energy (DOE/EPRI 2013) energy storage handbook, I calculated that the cost of a utility-scale lithium ion battery capable of storing 24 hours of electricity generation in the United States would cost \$11.9 trillion dollars, take up 345 square miles, and weigh 74 million tons.*

At least 6 weeks of energy storage is needed to keep the grid up during times when there's no sun or wind. This storage has to come mainly from batteries, because there's very few places to put Compressed Air Energy Storage (CAES), Pumped Hydro energy storage (PHS) (and also because it has a very low energy density), or Concentrated Solar Power with Thermal Energy Storage. Currently natural gas is the main energy storage, always available to quickly step in when the wind dies and sun goes down, as well as provide power around the clock with help from coal, nuclear, and hydropower.” <http://energyskeptic.com/2019/how-safe-are-utility-scale-energy-storage-systems/>

### **The problem of intermittency of power supplies is not going away. We must adapt to it**

This problem of intermittency will not go away. In all probability the continued expansion of renewable energy and reduction of coal and gas plants will mean a future of power cuts. This is what Tim Watkins argues in this article. <https://consciousnessofsheep.co.uk/2020/11/27/guardian-slips/>

I think we can take the argument one stage further and argue that the economy of the future must adapt to this intermittency. This includes adapting the internet to when energy is available. Technology must be made intermittency tolerant.

This website is an example - <https://solar.lowtechmagazine.com/> It sometimes goes offline because there is not enough power.

This is an example of another kind of thinking for this kind of world. **Keeping Some of the Lights On: Redefining Energy Security.** To improve energy security, we need to make infrastructures less reliable. <https://solar.lowtechmagazine.com/2018/12/keeping-some-of-the-lights-on-redefining-energy-security.html>

### **To summarise Part Three.**

By all means there is a need to explore in more depth a role for artists in future economic development – but money for big organisations and events to try to continue the consumption of arts by bringing more visitors to Nottingham to the glory of big organisations is not very helpful and is a different matter.

Promoting economic growth is unethical because economic activity has overshoot the carrying capacity of the biosphere and is degrading the ecological system.

Further expansion of the digital economy will degrade the ecological system even more. It needs to shrink and it needs to shrink and become intermittency tolerant.

**To be continued...**