



What is the human and environmental cost of new technology?

From mountains of electronic waste to conflict minerals, digital technology has a powerful social and environmental impact - could the media be the real enemy of sustainability?

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Guardian Professional, Wednesday 27 February 2013 10.11 GMT



The legacy of old technology: migrant workers break down discarded computers which have been left on the street in Guiyu, China. Photograph: Jim Puckett/AP

We need new metaphors in order to imagine greener design and regulation of digital media technology.

The existing metaphors are light, natural – and misleading: we connect 'virtually'; we '(be)friend' strangers; we compute in a 'cloud'; we phone with 'mobiles'; and we 'stream' programmes and movies and 'tweet' messages via server 'farms'.

Such figures of speech have eased us into believing that the new economy – much touted over the last decade and a half – is a clean, 'post-smokestack' world distant from the industrial revolution that created the Black Country and was symbolised by the cloth cap.

The new economy is the driver of a new century, fast moving and confident in its ability to disrupt and renew. It supposedly leaves in its wake outdated technologies. Consider the threat to new media of the elderly variety (the newspaper that leaves ink stains on your finger tips) or middle-aged media (the television set that sits in the corner of the living room).

It also makes the industrial militancy that characterised Britain of the 1970s and 80s seem anachronistic. Even nature seems out of date. Attempts to rebalance the economy between primary, secondary, and tertiary industries have been hapless and half-hearted. The services sector resurges rhetorically and economically.

But suggestions that we live in a dematerialised world are not only exaggerated; they are doing more harm than good. One person's cloud is another's pollution, and one person's mobile is another's enslavement. From electronic waste to conflict minerals, the new media leave an indelible mark on bodies and the Earth they inhabit.

What sort of metaphors can grasp this new world? Since the beginning of print, the media have had a consistent and dramatic impact on our planet. Herman Melville wrote of the chemical processes involved in cloth paper production in the 19th century United States. Women had the task of bleaching chemicals, pulping, and converting tatters of linen and wool "almost into lint". They worked in rag rooms where the "air swam with the fine, poisonous particles, which from all sides darted, subtly, as motes in sunbeams, into the lungs".

And cinema? At its peak, Kodak Park in Rochester, New York was churning out 200,000 miles of film annually, sucking more than 12 million gallons of water each day from Lake Ontario, and spewing refuse and chemical effluents into the Genesee River. By 2000, the company was the primary source of pathogens in New York State.

What of TV sets? By some reckonings, they are the most difficult manufactured goods to recycle. And ever since the digital shift began a few years ago, hundreds of millions of televisions have made their way to the global south, ditched from the comfortable suburban homes of London or Montréal to pollute the waste systems of others, while upgrades are safely put in place. Bye-bye fat screen, hullo flat screen.

But the *pièce de résistance* comes from the newer media, be they laptops, consoles, phones, or tablets. Their impact on workers and our Earth is horrendous and getting worse. The benign figures of

speech that accrete to these technologies are an ironic and misleading counterpoint to the way they remake the material world.

Last month's Consumer Electronics Association convention in Las Vegas – lovingly chronicled by the Guardian – boasted that US\$204bn was spent in the US on gadgetry in 2012, and forecast an additional nine billion this year.

Meanwhile, the TV Bureau referred to the propensity of viewers to look up goods and services on tablets while watching adverts for them on television as the Great Circle of Modern Consumerism.

The cost to all this fun, and it's not just the price of the things you buy, can be indexed by the electronic or e-waste it produces.

The International Labour Organization reports that 80% of e-waste "ends up being shipped (often illegally) to developing countries to be recycled by hundreds of thousands of informal workers", with "adverse environmental and health implications .

E-waste dumps proliferate, with horrific consequences for public health. And the ragpickers who undertake such informal recycling, taking their name from the women of Melville's day, are routinely murdered.

In short, the "great circle of modern consumerism" is a rotten metaphor, as cruelly misleading as its fellows in the cloud and the entire virtual repertoire of Orwellian new economy shtick.

Fortunately, researchers from the principal electronic waste dumps of the world – China, Brazil, India, Nigeria, Mexico – are on the job, alerting us to the consequences of this orgy of communications. And social movements around the world protest at the labour and environmental horrors we perpetrate.

The rebalancing we need is not George Osborne and David Cameron mounting their Barclay's bikes – or whatever apparatus comes to hand. Along with proper state action, it is a profound rethink by citizens and consumers.

Right now, as we clear away empty magazine racks, discard outmoded phones, desire new tablets, and gobble hourly upgrades, our pleasure is coming at the cost of workers and the environment in a way that cannot be seen through clouds of bliss.

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