

# High Frequency Change

*Why we feel like change happens faster now, and what to do about it*

by Tom Cheesewright

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# History's grand arc

Is the world spinning faster now? Does change really happen at a greater rate now than it did in the past? There are two sides in this debate: the accelerationists and the historians. It is hardly the Mods and the Rockers, but it is nonetheless an interesting clash of cultures.

The accelerationist movement arguably started on the west coast of the US and in Silicon Valley. Its most famous prophet is Ray Kurzweil, Google's chief futurist. Accelerationists believe we are heading towards some form of change crescendo, 'the Singularity'. They argue that the rate of change has been accelerating constantly over the last few thousand years, driven by technologies that amplify our powers and shrink our world. They point to Moore's law, the recognition by one of the co-founders of Intel that the number of transistors you can economically fit on a silicon chip doubles every couple of years and has done so since the 1960s. What this mouthful means for us is exponential increases in the bang for buck we can expect from our digital machines. That performance has knock-on effects: accelerating financial transactions, medical research and the spread of ideas in general. Ultimately, the accelerationists believe technology takes over. Artificial Intelligence becomes capable of evolving its own design and influencing, if not controlling, every aspect of our world. With machines able to iterate and innovate at the speed of light, the rate of change rises off the charts. They believe that the sense of acceleration we feel today is just the precursor to this dramatic transformation.

Historians say that, frankly, this is bollocks. They challenge our sense of acceleration and suggest that people have always felt this way. The world is always changing, and we always struggle to keep up. Historians point to periods of incredible change over the last couple of centuries and question whether our current connected computing revolution stacks up against major events from history, like the Industrial Revolution.<sup>1</sup>

I challenge both of these perspectives, because they both rely on a central idea that seems to me to be obviously wrong: that change is something that can be measured in a single dimension. Can we really consider the grand arc of history in terms as simple as 'fast' and 'slow'? History books do not have a speedometer on them. Reality is much more complex than this.

Of course, when things are extremely complex we tend, as a species, to turn to heuristics, a posh word for rules of thumb that help us to understand things. Maybe we do need a heuristic to help us understand the pace of change; it just needs to be a little more involved than simply 'fast' or 'slow'.

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To get to one, let us consider some of the examples of accelerated change we see today and some from the past.

## Spin cycle

The washing machine might be the most revolutionary piece of technology of the last two centuries. Just look at the scale of its impact: global, social, economic, political, cultural. The washing machine reshaped houses and households, supported women's liberation,<sup>ii</sup> enabled the explosion of the leisure industry and, perhaps not so positively, fast fashion.

Don't believe me? In 1953, Britons would spend an average of 63 hours per week on housework.<sup>iii</sup> And when I say Britons, let us be clear: most of that burden was shouldered by women. By 1965, according to a separate study, this had dropped to 44 hours per week.<sup>iv</sup> Today, the average is somewhere between two and eighteen hours per week, depending on which study you believe, or whether you have the walking muck-cyclones that are young children.

If you are working 63 hours a week just to keep the house running, then the prospects of a career are remote, as is the chance of leisure time, unless you really enjoy washing, ironing and cleaning. By automating one of the most time-consuming and energy-sapping tasks of running a household, the washing machine and its mechanical siblings changed our lives in the most dramatic ways.

But this transformation took time. The mass adoption of domestic automation appliances began in the 1920s in the US and the 1950s in Europe, but it took a long time for them to reach the majority of households. This was a change of enormous magnitude but at relatively slow speed.

## Unemployed horses

At the end of the 19th century, nearly a million horses were still employed on farms across Great Britain.<sup>v</sup> Though commercial steam engines had been available for nearly 200 years, and cheaper portable engines for over 50,<sup>vi</sup> horses remained a popular form of motive power. Specially-bred working horses pulled ploughs and turned mills. And they were not just employed on the farms. Millions more dragged slate and coal from mines and drew carts through towns. Horses remained a defining part of rural and urban landscapes, and were the basis of much employment. All those horses needed handling, feeding, caring for. A few million horses provided work for perhaps as many people.

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Then came the motor vehicle. For a long time the rail industry successfully lobbied to limit the success of the car industry. The 1865 'Red Flag Act' restricted the speed of motor vehicles to 4mph in the countryside and just 2mph in towns, and required any vehicle drawing multiple wagons to have a man carrying a red flag walk out in front. Even three decades later, at the end of the century, the speed limit was only lifted to 14mph.

None of this prevented the inevitable. By the time of the First World War, the combustion engine was taking over. Farm machinery was switching from one horse to many horsepower. Cars – many still steam-powered – were replacing carriages. And on the battlefield, the combustion engine was beginning to change the shape of warfare, powering the first tanks and accelerating supply lines.

Inevitably war-time investment accelerated the development of the combustion engine. In the inter-war period, petrol overtook steam as the preferred form of propulsion for personal transport. Cars like the Austin 7 sold in their hundreds of thousands, while across the pond the Ford Model A sold millions. By the 1930s, recognizably modern vehicles had started to appear: the Volkswagen Beetle and the Citroën Traction Avant. We were truly in the age of the motor car.

By the Second World War even the conservative cavalry had relinquished their horses. Millions of horses joined the equine unemployment line, and many came to a very sticky end.

Think about the scale of change this represented – not just for the horses. Think about it in terms of your senses: the switch from horses to cars changed the way the world looked, sounded and smelled. It changed the speed and sensation of travel. Think about it in terms of employment: huge numbers of new jobs were created and old ones destroyed, along with large parts of the industries that supported them. Coach builders, still so-called today, became car-customizers or faced collapse. Farmers could mechanize or be overwhelmed by the productivity increases of their neighbours. Think about it in terms of lifestyle: places that were uncomfortably reachable in a day became easy trips in a couple of hours. Families could be more distributed and remain connected. Cars changed the way we live and work, reshaping our cities and our countryside.

This change took decades, but it completely changed all our lives.

## **The Jetset**

War also shaped another critical change of the 20th century: the jet aircraft. Following the rapidly accelerated development of the jet for military purposes, domestic use began in peace time. But it

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took a few years before it became a reliable form of transport, and even more before it became widely affordable and had its great impact.

The power of the jet aircraft is to shrink the world, to bring distant places closer and allow the more rapid movement of people, products and ideas. Jet aircraft typically cruise at least 25% faster than their prop-driven counterparts. They are more efficient at high speed and high altitude, making larger aircraft and longer journeys more affordable. Only with the jet engine could be conceived cost-effective business trips and budget package holidays.

Of course, these were not the first civilian uses. Air travel was a luxury enjoyed by the wealthy, with ‘the Jetset’ flying to London, Paris or New York for swanky parties. Transatlantic flights would cost thousands, domestic flights across the US twice as much as they do now.<sup>vii</sup> Before the jet aircraft there were no express package services that could deliver over long distances. Air freight was inordinately expensive.

Before the use of any of these services could expand, and prices could fall, the aircraft had to be safe and reliable, and the first ... were not. The De Havilland Comet, the first jet airliner, suffered from serious structural issues with some early models breaking up in flight due to metal fatigue. It took years of revisions and redesigns before the model reached something close to modern safety standards.

The jet aircraft has shrunk our world and allowed more of us to see more of it, but getting to that point took time – decades. Another slow speed change of great magnitude.

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<sup>i</sup> Frederik, Jesse. “The world’s not changing faster than ever at all.” *The Correspondent*, 8 April 2016. <http://bit.ly/2R8gYiq>

<sup>ii</sup> Cardia, Emanuela. “Household Technology: Was it the Engine of Liberation?” conference.nber.org, 10 July 2008. <http://bit.ly/2S71iJm>; Bowden, Sue and Offer, Avner. “Household appliances and the use of time.” *Economic History Review*, November 1994. <http://bit.ly/2A8GN8b>

<sup>iii</sup> Warman, Matt. “Technology cuts chores to just two hours a week.” *Daily Telegraph*, 8 August 2013. <http://bit.ly/2S9WN00>

<sup>iv</sup> Peacock, Louisa. “Women spend half as much time on housework today compared to 1960s.” *Daily Telegraph*, 5 December 2012. <http://bit.ly/2R55QTf>

<sup>v</sup> The museum of English rural life, Reading University. <http://bit.ly/2PQryWy>

<sup>vi</sup> “Steam among the farmers.” *Chambers’s Journal of Popular Literature, Science and Arts*, Volumes 21-22. <http://bit.ly/2PRN5OM>

<sup>vii</sup> Garcia, Marisa. “What Flights Used to Cost in the ‘Golden Age’ of Air Travel.” *Travel and Leisure*, 13 August 2017. <http://bit.ly/2rMMUus>