A long delayed golden age:
Or why has the ICT 'installation period' lasted so long?

By Carlota Perez

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Since the Industrial Revolution began in England in the 1770s, the process of diffusion of each successive technological revolution has taken between forty and sixty years. In each case, the first half of this period was typically a turbulent 'installation period' of creative destruction, and the second half was a golden age of full 'deployment period'. In those better times, guided by a proactive government, investment and innovation moved in synergistic directions and growth benefitted increasingly broader layers of society. In fact, I have argued that such pendular swings from turbulent to peaceful growth, with a crash or two in the middle, are the shape that progress takes in market economies.

This time however, things are different. With the current ICT revolution, we seem to be stuck in the installation period or in what I call the 'turning point', which is the mid-way time of recessions and uncertainty, revolts and populism that reveals the pain inflicted on society by the initial 'creative destruction' process. It is precisely when the system is in danger and is being questioned and attacked that politicians finally understand they must set up a win-win game between business and society. And it is the time when much of business understands it must be done.

Of course, each revolution is unique, and the pattern is not mechanical. It depends on the context and on the particularities of each set of new technologies. And yet this time, although installation has been more intense than ever, both in jobs and regional destruction and in lifting new areas and whole countries to development, post bubble crashes have not led to an institutional rethinking to unleash the better and fairer times of the Information revolution. Expectations for a golden age after the NASDAQ collapse, and again after the 2008 financial crash, have been disappointed. What could be the reasons for the delay?

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This one is (really) different

In terms of the uniqueness of this revolution, one can identify three features that could have prolonged its propagation:

One is that after four revolutions replacing manual labour, the new technologies have found an enormous new territory to mechanise: mental labour! This has led MIT's Brynjolfsson and McAfee and many others to consider it as the beginning of a 'second machine age'. Nevertheless, even if that can prolong the experimental installation period, it should not stop a golden age from being unleashed.

Another is that, being a globalising paradigm, it implies a more complex process of propagation of production and demand across many countries. The ease of internet penetration to the most hidden corners of the world, and the access to information about conditions anywhere, have made it easy to reach many more parts of the globe and much more deeply than the first globalisation from the 1870s, which was based on telegraph, railways and steamships.

And, finally, in contrast with previous revolutions when the infrastructure was one of the initial innovations, this time the internet was only available twenty-three years after the microprocessor, when the US government handed it over to the private sector. So, for more than two decades, information technologies developed using analogue telecoms and satellites and without truly digital means of data transmission.

The context favours the past

But those reasons relating to the revolution itself, though not negligible, are probably less important than the ones that depend on the context of propagation. The first of these relates to the vast increase in markets and labour occurred with the unprecedented reintroduction of the countries of the former USSR and China into the global market economy. The second relates to the power acquired by global finance and its strengthening by the response of governments to the crises. Lastly, a minor but perhaps not negligible circumstance that is the longer lives that have allowed traditional leaders in politics and business to remain in place until their 70s and even 80s.

The importance of the latter resides in the creation of a 'glass ceiling' for the digital natives, whose capacity to innovate with the paradigm – both technologically and institutionally – is much greater than that of the generations who learned to innovate within the mass production principles, and who are still in power. This could have led to an escapist behaviour where – not being given the opportunity to solve the world's problems – the talented young people escape to the metaverse, otherworld games, separate cryptocurrencies, and other such ways of decoupling.

The role of China

But the most significant reasons for the delay are the other two factors. The initial entry of China into the world economy as the mass production factory of the world, with extremely low-cost and long-hours labour in much longer (computer-aided) assembly lines, resulted in what Kaplinsky has called 'a new lease of life' for the mass production paradigm. So the mature products of the old technologies, rather than becoming more expensive due to stagnant productivity, became much cheaper; instead of inducing a service and maintenance economy, the low prices exacerbated the old wasteful habits; and rather than abandoning the old and inducing intense innovation to fulfil needs with the help of the new technologies, the two worlds have evolved side by side in a coexistence that has worsened the threats of climate change and of reaching planetary limits. This in turn has forced information technologies to the sidelines, apart from the giants, digital talent is concentrating on games or crypto or NFTs or space travel or the metaverse. If it weren't for

the pandemic, we would still be far from reducing travel, by learning to have meetings online, or from getting used to streaming films, music, and books.

Globalised finance as the main obstacle

All those factors play a role, but the most acute impediment to a golden age deployment is the continued decoupling of finance from production. The usual casino of the frenzy periods has remained in force since the NASDAQ bubble, with major variations in form, but not in essence. It is clear that profits are much easier to make and more abundant in the financial world than in production (except for the new tech giants). The income polarisation between the top 10% and the majority continued unabated through the two collapses and the pandemic. The appreciation of assets with less and less connection with what happens in the real economy results in a sort of 'differential inflation' where asset owners become richer and salary earners poorer, in both real and relative terms. The question is: why?

Socialised risk, privatised reward

To answer this, we must look at how governments 'rescued' the financial world by pumping excess liquidity directly into banks' coffers, either with TARP (the Troubled Assets Recovery Program) or with quantitative easing (QE). Instead of punishing the system for having harmed society with deceitful – not 'troubled'– assets, governments bought them at unreasonably high prices, thus saving the banks by abandoning taxpayers, many of whom lost their homes. The 'troubled assets', especially the real estate packages of good and bad loans, created with the help of computers and sold to investors as 'AAA' rated, would disappear into the Central Bank's coffers while the casino could restart with a clean slate. After that, 'quantitative easing' – a system developed by the Japanese to combat deflation – pumped as much as 10% of GDP into the banks and at unprecedentedly low interest rates (from less than 1% to even negative), in a low inflation economy that made taking credit a better deal than saving.

Worse still, this flood of liquidity for banks to play with was not accompanied by any conditionalities, for instance requiring lending to SMEs or to green projects. Such support with 'no strings attached' would have been unthinkable when the Brady Plan was set up for facing the developing countries' debt crisis or when Greece was bailed out. Since the favoured banks were not required to use the money to fund the real economy, production investment and productivity increases remained at all-time lows, while the financial world played betting on derivatives and new 'synthetic' instruments across the globe. As to the 'real' economy investments, there is, of course, plenty of money, mainly from the profits (and the avoided taxes) of the new digital giants going to space travel, computer games, surveillance tools, parallel universes, crypto currencies and other escapist undertakings, rather than solving the problems of the environment, materials, health, education and other real social needs. As in every previous revolution, the experts in the new technologies must collaborate closely with other scientists and engineers to cover the whole industrial spectrum. In the meantime, the giants in the digital portion of the real economy, paying little or no taxes – with the help of tax-havens and loopholes – use their money to buy

potential competitors (before they grow to compete with them), to travel into space or to the 'metaverse' of virtual reality and other exciting adventures.

Populism and the risk of a gilded age

Meanwhile, and as a consequence of all this, populism takes hold of one country after another. Social democratic parties lose power and have little to offer to reconstruct hope. The viability of a global sustainable golden age is clear, in technological and economic terms, but in political terms its probability is very low. And time only strengthens global finance, and weakens the prospects of reining it in. Without that, we will have a gilded rather than a golden age, as happened in Britain from 1900. As Cain and Hopkins have shown, the alliance between the aristocrats and the financiers centred on the empire, disregarded industry and let Germany and the US forge ahead, while the British financiers funded trade, shipping, insurance, railways and other investments in their colonies and across the world, in the first phase of globalisation.

A complex reality

History does not follow mechanical patterns; instead it is a complex process through which the different members and groups within societies act and interact according to their interests and to their values, as well as by the power system they have installed. It so happens that the market economy relies upon multiple individual decisions to bring a decent outcome, even 'the best possible outcome' according to orthodox economists.

But, as Chris Freeman put it, market economies evolve in the constant interaction among five semi-autonomous spheres: science, technology, politics, economics, and culture. The good times occur when they enter in synchrony, the turbulent times are those when they are in disharmony.

They are certainly in disharmony now.