

## THE NEW TECHNOLOGICAL REVOLUTION

Carlota Perez

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Today and tomorrow we will be exploring the frontiers of technology. We are all eager to identify the next big thing or the next technological revolution. That seems to be the modern version of El Dorado!

The truth is that technology has been so impressive lately that we have all become convinced that it's disruptive innovation that brings growth and success. Well, it does... and yet, it doesn't!

History can teach us a lot. Innovation has indeed always been the driver of growth and the main source of increasing productivity and wealth. But every technological revolution has brought two types of prosperity. The first type is turbulent and exciting like the bubbles of the 1990s and 2000s and like the Roaring twenties, the railway mania and the canal mania before. They all ended in a bubble collapse. Yet, after the recession, there came the second type: the Victorian boom, the Belle Époque, the Post War Golden Age and... the one that we could have ahead now. Bubble prosperities polarise incomes; Golden Ages tend to reverse the process.

The first prosperity of each revolution is a huge experiment for testing and choosing the new technologies and for installing the infrastructures (be they railways or electricity or internet). It is an intense process of creative destruction, of learning the new and unlearning the old, of getting rid of the dinosaurs. Innovation concentrates on the new industries (as we saw with the information revolution) and on modernizing all the other industries with the new paradigm. This time, it also concentrated on globalization.

The result is that the range of possible technological avenues is now immense. The power of information technology can enable almost any industry to make its own revolution: the world of medicine, the world of materials or that of biology, the creative industries, transport, energy, buildings, nanotechnology, stem cells, agriculture, 3D printing, robotics... Which is the next big thing? Nobody knows. There are no sure successes. They are all uncertain. But they are indeed powerful paths for innovation and wealth creation.

Well, those are precisely the conditions for the second type of prosperity. The major transformation results, not from one technology or a set of them, but from all industries innovating in convergent directions. That's what creates the synergies and the self-reinforcing loops that make demand dynamic for all.

That's how the Post-War Golden Age happened. The huge innovation potential of the mass production revolution installed during the 20s and 30s brought, from the mid-40s to the 60s, the biggest boom and the first full employment economy in the history of capitalism.

The main force pulling innovation then was the suburban home. The automobile made it possible to build cheap houses on cheap land (between the expensive cities and the isolated countryside). Hundreds of thousands of new homes signalled the direction of innovation towards comfort: from less work in the kitchen to more leisure in the living room, from refrigerated and frozen foods to disposable plastics, from vacuum cleaners to detergents and insecticides, from easy-to-clean flooring materials to synthetic fibres that needed no ironing and so on. This growing demand stimulated innovation in productivity that allowed salary increases and turned the workers into middle income consumers. That positive feedback loop

was strengthened by mortgage insurance (like the original Fannie Mae) and consumer credit, which enabled monthly payments for homes, cars and appliances; then unemployment insurance avoided failing payments and old age pensions let people spend their whole salary with confidence.

At the same time, the Cold War and the Space Race funded and stimulated innovation at the high tech frontier. It was a whole set of institutional innovations, based on taxation, that guaranteed an unending flow of consumption and clear increases in well being.

Business strategies, consumer values and government policy joined in a positive sum game: it was a true win-win-win situation for all participants in the advanced countries of the West.

Now we are placed in similar conditions, but we have a completely different technological potential. Not one based on homogeneity but on diversity; not turning services into products but turning products into services, not only local or national but also global... and we could go on and on. We obviously need a completely different focus; a very different guiding vision and another set of institutional innovations.

How could we unleash a Global Golden Age with the vast innovation potential we have now? What could create the 21<sup>st</sup> Century convergence?

I see three powerful and interdependent directions:

- creative healthy individuals
- a sustainable planet and
- full global development.

We are no longer aiming at the home but at the individual; the creative, mobile, healthy individual, interconnected in multiple communities (including the family), constantly communicating and learning and leading a high quality life for a much longer period. Happiness almost becomes an entrepreneurial project. Leisure is no longer rest (no couch potatoes); it is participatory and active. The consumer is becoming a “prosumer” (combining production and consumption) Medicine will no longer be a war on germs but a joint effort doctor-patient, based on a much deeper and holistic understanding of the workings of the brain and of the human body, of the role of food, exercise, identity, good taste, education --and even meditation-- in achieving the new ideal lifestyle. For now, obviously, this is a model for the educated middle classes (as was home ownership in the 1920s and 30s); but it can become everybody’s notion of “the good life;” everybody’s aspiration.

The planet is no longer an inexhaustible source of energy and raw materials and a place to deposit our waste, but a complex system that needs to be understood and protected, precisely to guarantee the healthy lives we all want, but also to be able to incorporate hundreds of millions of new consumers. That is the new Space Race! Growth and demand will depend on whether we are able to stretch the frontiers of knowledge to successfully face the environmental limits. We will need to enormously increase the productivity of all resources. Eliminating waste and pollution, creating closed-loop systems, designing for durability, resuscitating maintenance as an activity, rethinking our built environment and its radical transformation, will all be essential for both healthy lives and continued globalization.

And that is indeed the third direction: full global development! The first prosperity of the ICT revolution already brought the emerging countries into fast growth; the challenge for the golden age ahead is to do for the whole world what the mass production revolution did for the advanced countries of the West: Lift everybody into the good life!

We could call the combination of those three driving forces simply “green growth”: That can really be the next big thing; it is a clear direction for reviving the economy through innovation. But, as in the Post-War golden age, it will require consensus between business, governments and society to tilt the playing field strongly in its favour, through bold and imaginative institutional innovation.

After all, the legitimacy of capitalism depends on its capacity to turn the individual search for profits into benefits for everybody. With that in mind, I want to invite the business community to become the engine of a consensus-building process for unleashing the golden age that will spread the good life in the 21<sup>st</sup> Century.