



**In the latest cycle of technological change, capitalism is getting ready for its next act, but it is vulnerable to political developments.**

“I suppose it’s tempting, if the only tool you have is a hammer, to treat everything as if it were a nail.”

Abraham Maslow (1908-1970)

In the 1930s, the Soviet Union asked Nikolai Kondratieff, a mathematician, to create a model that would “prove” that capitalism would fall and communism would endure.

Kondratieff studied economic history and reached the conclusion that economics was better explained by technology than class struggle. He observed that technology did not evolve linearly, but rather in leaps every 50 to 60 years. Named for the mathematician who made it famous, this pattern is called Kondratieff cycles or K-waves.

K-waves have been studied since and confirmed via **spectral analysis**. There is some controversy about the number of cycles and when they begin. Table 1 shows our own interpretation of the cycles and their defining technology.

**Table 1 – Kondratieff Cycles**

Cycle	Period	Description
1 <sup>st</sup> Cycle	1770-1820	Initial mechanisation
2 <sup>nd</sup> Cycle	1820-1870	Steam power, railroads and telegraphs
3 <sup>rd</sup> Cycle	1870-1930	Electricity, internal combustion and heavy engineering
4 <sup>th</sup> Cycle	1930-1980	Mass production, Fordism and nuclear energy
5 <sup>th</sup> Cycle	1980-2030?	Telecommunications and informatics
6 <sup>th</sup> Cycle	2030-2080?	Robotics, alternative energies, and Human Enhancement Technologies (HET)?

Source: Authors

Our main research hypothesis involves the end of the fifth, and current cycle, as well as the existence of a sixth cycle.

**The Crisis of 2015-2030**

Each Kondratieff cycle ends with a general crisis. Karl Marx predicted capitalism as crisis-prone and believed this would lead to it falling apart. But Kondratieff found that capitalism reinvented itself with each crisis. As the saying goes, “desperate times require desperate measures” - giving rise to new solutions, investment in technology and new business models. These periods of crisis or struggle generally last between 12-15 years and eventually a new form of capitalism emerges.

We seem to be in a period of struggle now. Based on past trends, the predicted crisis of the current

Kondratieff cycle should take place between 2015 and 2030. When future economists or strategists look back, the refugee wave that hit Europe in 2015 may be considered the triggering event.

Table 2 lists the main conflicts of each “crisis sub-phase” – the struggle that marks the end of each Kondratieff cycle.

**Table 2 – Crisis Sub-phases of Kondratieff Cycles**

Cycle	Period	Description
Pre-cycles	1755-1770	Seven Years War (1756-63)
1 <sup>st</sup> Cycle	1805-1820	Napoleonic wars
2 <sup>nd</sup> Cycle	1860-1870	Crimean War, Triple Alliance War, American Civil War, unification of both Germany and Italy
3 <sup>rd</sup> Cycle	1914-1930	World War I and inter-war period
4 <sup>th</sup> Cycle	1965-1980	Vietnam War, space race, Cold War, Arab-Israeli wars (1967, 1973)
5 <sup>th</sup> Cycle	2018-2030?	?
6 <sup>th</sup> Cycle	2065-2080?	?

Source: Authors

World War II and the generation after are considered outside the crisis sub-phase of the cycles. The 1939-1945 period was one of intensive technological development and economic growth, in the face of massive destruction. The post-war period gave us strong and fast expansion with a new public “business model” of the Welfare State. Hence, the 1950s are still known as the “golden age”. That model worked until the 1970s when it was reformed.

As was the case at the end of other K-waves, “desperate times require desperate measures”. People are investing in new technologies and thinking out-of-the-box, trying new things and accepting the previously unacceptable. This is when a set of new technologies that had been too risky to develop becomes more feasible due to an increased tolerance of risk. A new technological revolution is brewing.

This means organisations must tailor their strategies and business models accordingly.

### How business models will evolve

When technology changes and capitalism adapts, business models evolve for companies to stay profitable.

Business models have been around since the foundation of capitalism. There was a banking business model as far back as the 10<sup>th</sup> century. As capitalism evolved, especially after the Industrial Revolution, so did business models.

A business model should not be designed with rigid components. It must have the real capacity to support the creation of revenues and profit in an organisation.

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For example, **Casadesus-Masanell and Ricart** used Ryanair, the low-cost airline, to illustrate business model components:

Choices	Consequences
Secondary airports	Low airport fee
Lowest ticket prices	Large volume
Low commissions to travel agents	Low cost
Standardised fleet of 737s	Bargaining power with suppliers
Single class	Economies of scale

But how to ensure continued revenues and profits overcome crises and changes in the current dominant model of making and creating wealth? The next challenge is to ensure that the business model components have the ability to interrelate to create value, as in the Ryanair example.

As technology and the economy co-evolved new business models were created. Models like retail businesses, public companies, franchises, manufacturing, licensing, joint ventures, Private-Public Partnerships, umbrella brands, multinational corporations, venture capital, holdings, and trusts have all been developed to cope with an increasingly complex world.

Co-evolution between technology and the economy has not ceased, and business models must match increased complexity in the future.

### The technological revolution of 2030-2050

The next technological revolution will force another reinvention of capitalism. We have recently seen the invention of new extra-national currencies, such as bitcoin, and commercial transactions are focused on reducing bureaucratic barriers between the provider of labour and monetisation, like PayPal.

Understanding the final user becomes a priority in this new dynamic business model. The user may change over time and businesses must be flexible. Drones, for example, were created for military use yet they are also used as toys or in agriculture to dust crops with insecticide.

In our current age, many objects are designed for entertainment but, given time and user consideration, they can be used in practical ways as well. Managers must continue to look for new alternatives to maintain value creation.

The search for value creation is ongoing. After examining R&D budgets from around the world, we can envision six major trends possibly emerging:

1. Extreme robotisation using Artificial Intelligence
2. Extreme longevity using HET (Human Enhancement Tech)
3. Extreme geographical dispersion due to the

- optimisation of telecommunications
4. Extreme mobility in new cars and airplanes
  5. New energy matrix with solar, wind, biomass and shale (fracking)
  6. New raw materials coming from space

### **A new cycle?**

Will businesses be able to adapt? We have something that none of our predecessors had: big data. The ability to crunch numbers to simulate future scenarios is a unique power that could impact the technological cycles going forward.

Looking back over Kondratieff's Cycles, one aspect we cannot control is government. The political decision-making power of a handful of countries is the independent variable. This variable could decide our future and whether capitalism as we know it will continue.

Businesses should also be aware of, and tailor their strategies and business models to, hegemonic cycles and their effects. Hegemonic stability theory indicates that international relations are more stable when a single nation is a dominant world power, or hegemon. Hegemonic cycles tend to run for 100-140 years before entering a period of transition and a new stability cycle. It remains to be seen whether we are at the end of America's dominance as the global hegemon.

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