

Jeremie Averous

The Fourth Revolution Manifesto

- Part IV -

**Four precursors
of the
Fourth Revolution**



The Fourth Revolution is a one-in-a-century's opportunity. What about becoming part of the new elite?



A Revolution is an opportunity: to become part of the new social leadership. This manifesto contains invaluable advice and direction as to the behaviors and skills to succeed and thrive through the world's transformation.

The Fourth Revolution is one of the few moments in humankind history where our world understanding and our society are completely redefined.

The Fourth Revolution has already ignited.

The manifesto explains the deep causes of the current changes of the world. What can we do to grasp the opportunity and build the world we want ?

Contribute to build our world
Connect and participate on
www.thefourthrevolution.org

Jérémie Averous is a senior executive, trainer, certified coach. He likes to describe himself as a K.E.E.N, a Knowledge Enhancer Exchanging Networker, the typical member of the new international nomadic community.



The Fourth Revolution Manifesto Reference



To make it easier for online consultation and download, the
Fourth Revolution Manifesto has been split in 8 parts

Part I	A short history of humankind – 100,000 years in 3 Revolutions
Part II	Cheap long distance interactive communication is new and transforms our collective cognitive capability
Part III	The Collaborative Age value system: how the collective cognitive capability of humankind is again transformed
Part IV	Four precursors of the Fourth Revolution – events and discoveries at odds with the Industrial Age model in the 20th century
Part V	The Organization Revolution: from efficiency- management to effectiveness- leadership
Part VI	Four institutions that will be deeply transformed
Part VII	Four keys to success in the Collaborative Age: new insights, practices and skills
Part VIII	Your Choice. And why YOU are important for the Fourth Revolution.



The Fourth Revolution Manifesto

Part IV - Contents



Part IV- Four precursors of the Fourth Revolution – events and discoveries at odds with the Industrial Age model in the 20th century

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Introduction

**How to identify
precursors**

How to identify precursors

Precursors of a Revolution are those events and structural changes which are at odds of the typical world order of the current Age.

These precursors appear quite a while before the Revolutions leading to the following Age actually kicks in.

They are identifiable, because they contradict the normal work order of the current Age. They are often not mainstream at the beginning but progressively become more visible.



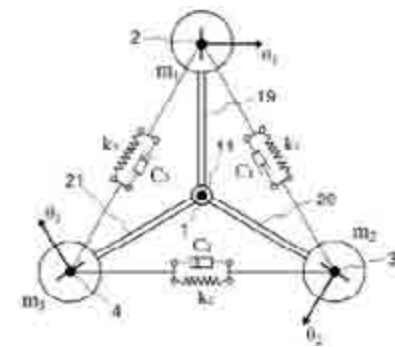
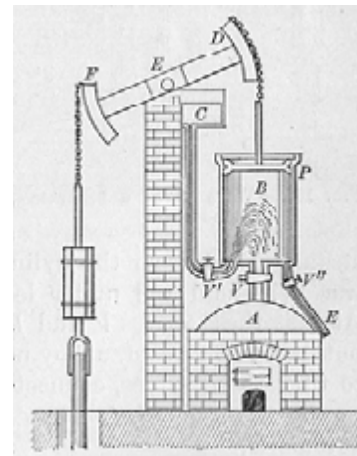
On the left, Copernicus showing the Earth moving around the sun in 1543, a precursor of the Industrial Age

Example of historical precursors



For example, some precursors of the Industrial Age were the following:

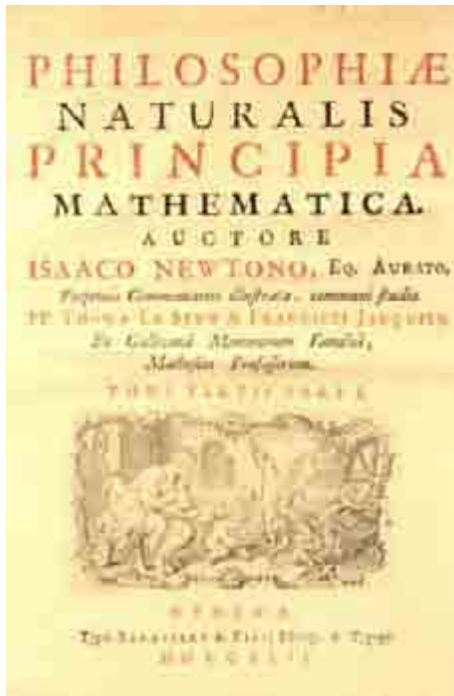
- Communication: broadcasting through printing (1450's)
- Scientific laws: Copernic and Kepler showing that the Earth revolves around the sun (1543), Newtonian physics (1686)
- Economy: charging interests on loan is not any more a sin; double-entry bookkeeping, modern banks (1400's)
- Energy: mined fossil coal starts to be used in the UK in the 1700's to replace wood and charcoal
- Machines: the steam engine is invented to help pump water out of the mines (1750's)



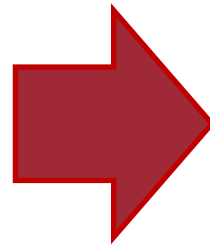
Precursors always take several decades to find widespread application



Practical widespread applications and acceptance of precursors always takes more than 50 years – more than one generation, because it involves redefining one's worldview.



Newton's Principia - 1686



Widespread usage of mechanical principles of statics – 19th century

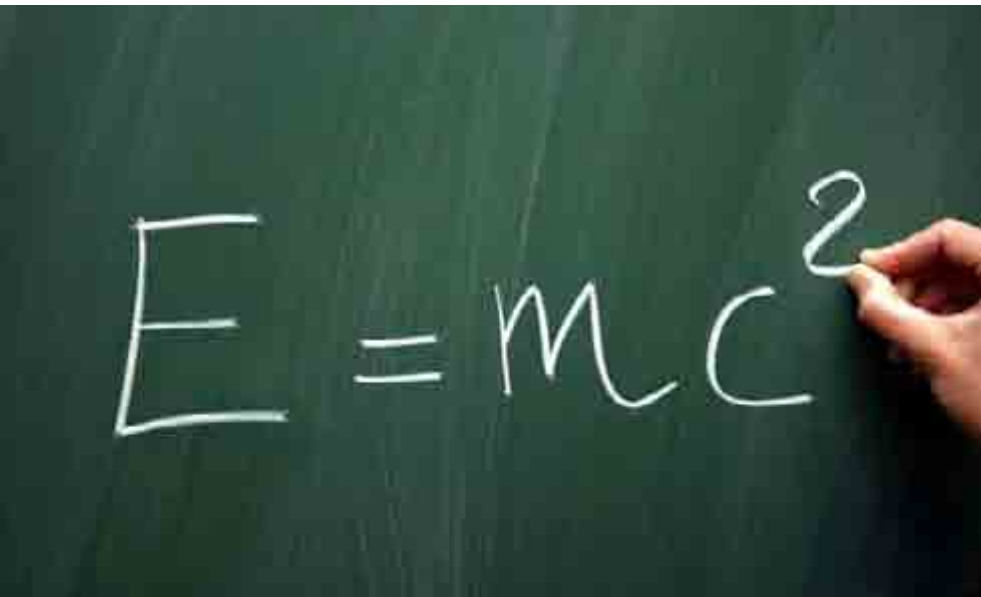


The first Precursor of the Fourth Revolution

**A dramatic change of
our understanding of
scientific laws**

Fourth Revolution precursors

1 - Scientific laws



Einstein
1905 + 1916

In the late 19th century, experiments find results that are not consistent with Newton's physics (Michelson-Morley experiment – 1887)

Einstein formalizes the Theory in Relativity in **1905** and **1916**. Further developments lead to quantum theory, in the **1930's**.

It is a substantial paradigm shift from Newtonian physics.

Fourth Revolution precursors

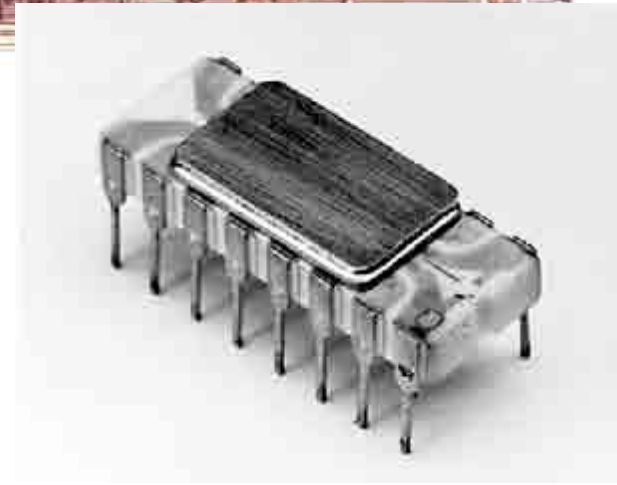
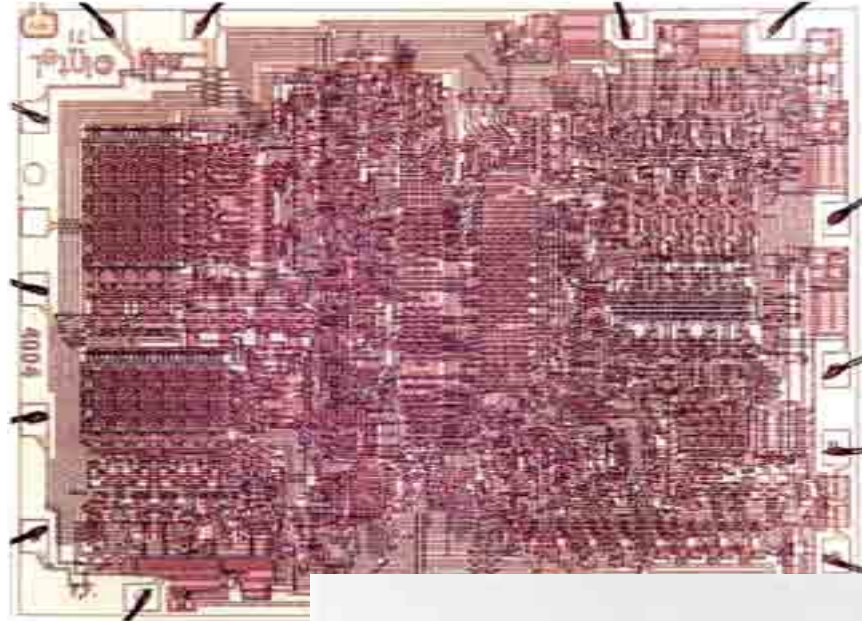
1 - Scientific laws



As always, practical applications in our daily lives of these new theories will take decades to appear. But they will transform our civilization in a massive way.

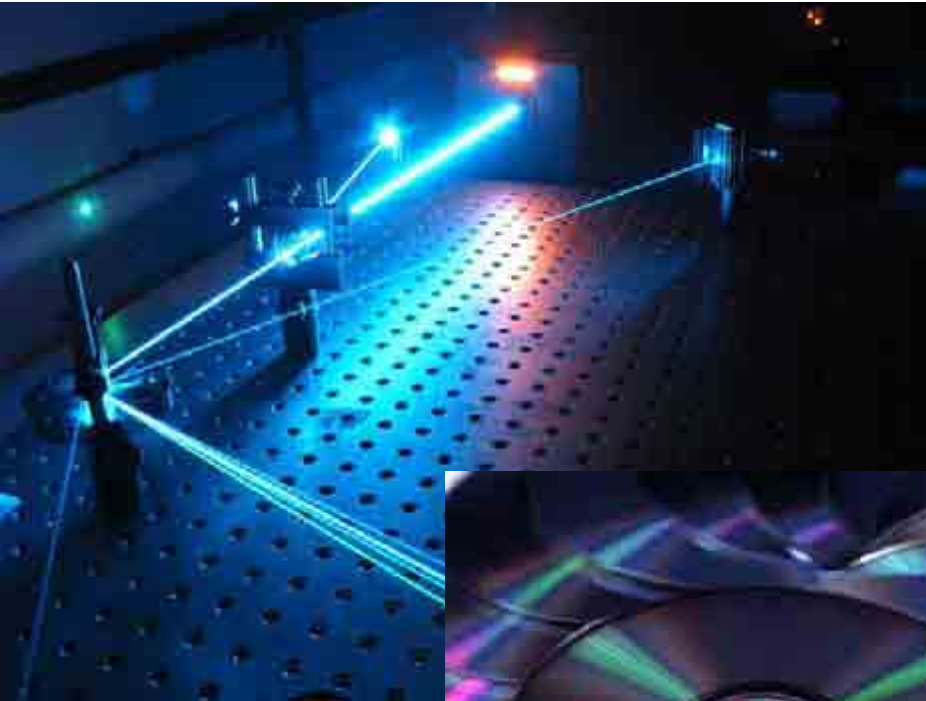
Also, the new scientific laws will lead to the invention the transistor and hence the development of the microprocessor, a key components of today's world.

The first practical, massively produced microprocessor is the Intel 4004, in **1971**.



Fourth Revolution precursors

1 - Scientific laws



Finally, it is only recently that the new laws of physics impact significantly and massively our daily lives - from the **1970's onwards**.

While the Laser, a direct outcome of quantum physics, was invented in **1958**, the CD, a new way to broadcast music in the form of digital information, will start to be produced massively in **1982**.

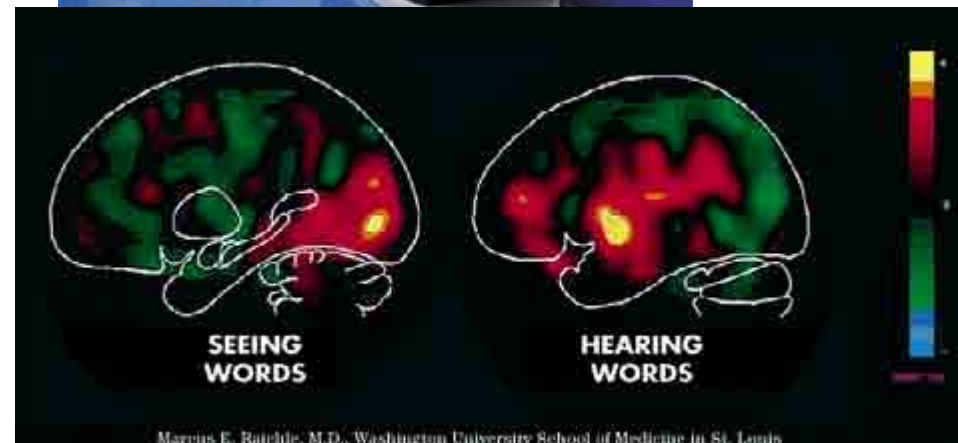
Fourth Revolution precursors

1 - Scientific laws

An application of quantum physics worthwhile to mention is the development of new, non intrusive imagery technology that allow to look into the operation of the body.

Particularly important are the Magnetic Resonance Imaging and Positron emission tomography which appear in the **1970's**.

We are only beginning today to get a grip on the understanding they bring to us regarding the operation of our body and brain.



Marius E. Raichle, M.D., Washington University School of Medicine in St. Louis

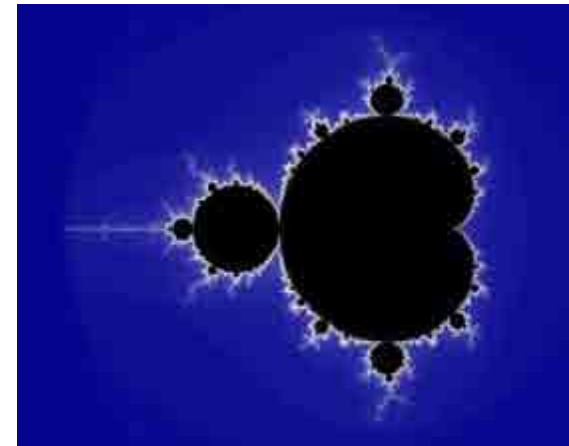
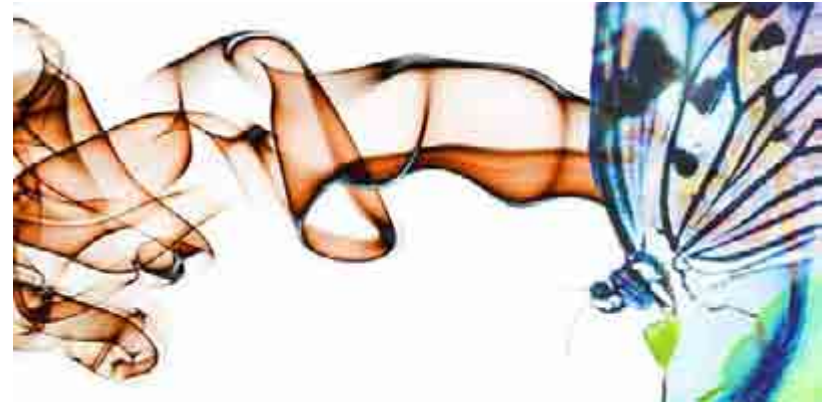
Fourth Revolution precursors

1 - Scientific laws

An other very important finding is Chaos Theory, discovered in **1961** by Lorenz, a researcher in weather forecasting.

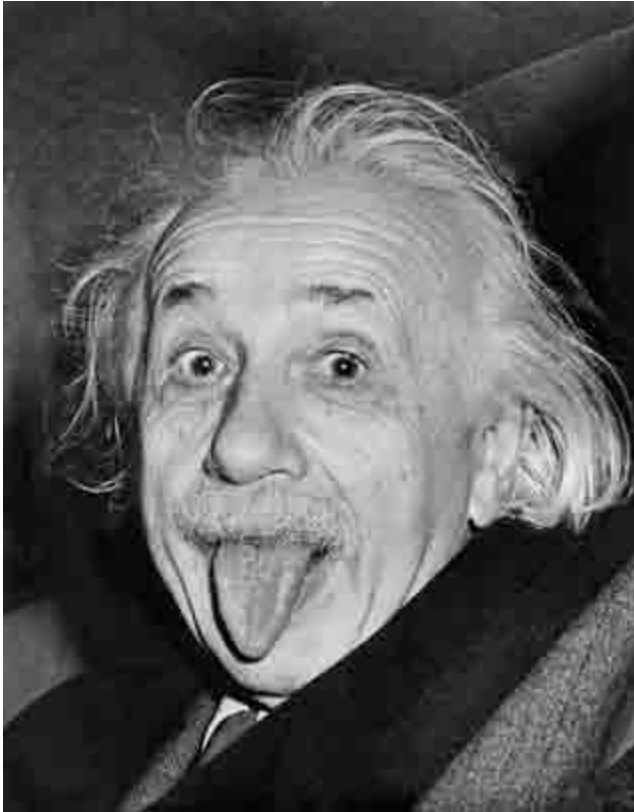
It is often summarized with Lorenz's famous sentence: the flapping of a butterfly in Brazil can cause a storm in Florida several months later.

Chaos theory is just one of the best known mathematical developments around statistics, showing that conventional statistics are not applicable in the real world because rare, major events will cause most of the changes. Mandelbrot, better known for the fractals, is a major contributor to this understanding.



Fourth Revolution precursors

1 - Scientific laws



Einstein

We have not yet fully understood and integrated in our thinking the consequences of all these new scientific findings.

Einstein is right to be naughty – his contribution reinvented totally the world.

While we are now using routinely many technologies from Relativity Theory, Quantum Physics, and Chaos Theory, it will be still be some time before we understand all the philosophical implications of these findings.



The second Precursor of the Fourth Revolution

**A transformation of the
perception of our
environment**

Fourth Revolution precursors

2 – Perception of our environment

In the last 100,000 years, through all the previous Ages and Revolutions, Humankind has only moved in one direction: exploit more, and more effectively, the bounty of nature.

The Hunter-Gatherer Age led to the extinction of large mammals of the ice age.

The Agricultural Age led to deforestation and overexploitation of soils.

The Industrial Age led to widespread exploitation of natural resources, fossil fuels, and widespread pollution.



Fourth Revolution precursors

2 – Perception of our environment

Since the late 1960's our perception of nature has shifted dramatically. Many people are now moved by a strong will to protect the environment.

Several causes are mentioned for this shift: pollution events, the realization of global impacts on the entire planet...



Minamata, Japan, 1960's
Love canal, US, 1970's



Fourth Revolution precursors

2 – Perception of our environment



The main cause is probably these pictures. The first pictures of Earth from space in 1965. We all realize we live on a fragile blue planet in the midst of a void and hostile space.



Fourth Revolution precursors

2 – Perception of our environment

1969: first pictures of Earth from the Moon



Fourth Revolution precursors

2 – Perception of our environment



The dramatic shift of our perception of the environment is a true precursor.

It is at odds with our Industrial Age mentality – technological progress and exploitation of natural resources.

Progressively, it shifts significantly our approaches to problems.





The third Precursor of the Fourth Revolution

**An unprecedented
personal freedom**

Fourth Revolution precursors

3 – Unprecedented individual freedom



In 1960, an invention changed the deal for half of humankind, conferring unprecedented freedom of choice for these persons.

**It is very small – 10mg.
And very powerful.**

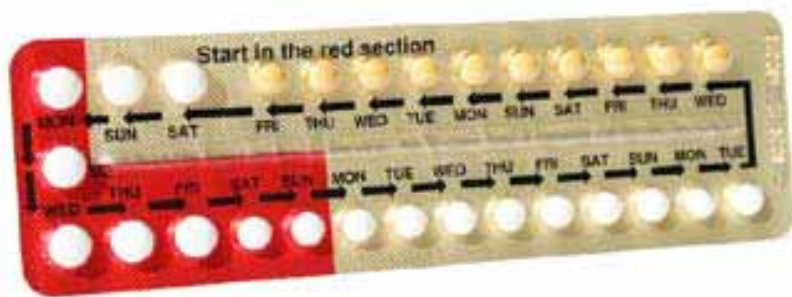
Fourth Revolution precursors


3 – Unprecedented individual freedom



Modern contraception is a major technological breakthrough that gives unprecedented individual freedom of choice for women.

Not only that, but it limits drastically the number of unwanted children and orphans, giving more choices to the next generation too.



A composite image showing a man in a suit and a large feathered headdress holding a laptop, surrounded by indigenous people in traditional attire. The man is in the foreground, looking at the laptop. Behind him, several indigenous people are visible, some with traditional headgear and body paint. The scene is set in a natural, outdoor environment.

The fourth Precursor of the Fourth Revolution

**A deep shift of
economic value
creation**

Fourth Revolution precursors

4 – Value creation



The value creation chain has shifted significantly since the 1990's in all countries – not only developed countries but also emerging countries.

In the typical Industrial Age, the main value creation driver is the efficient mass production of standard widgets. The world is starving for these products, and the main objective is to produce as much as possible for the lowest possible unit cost.



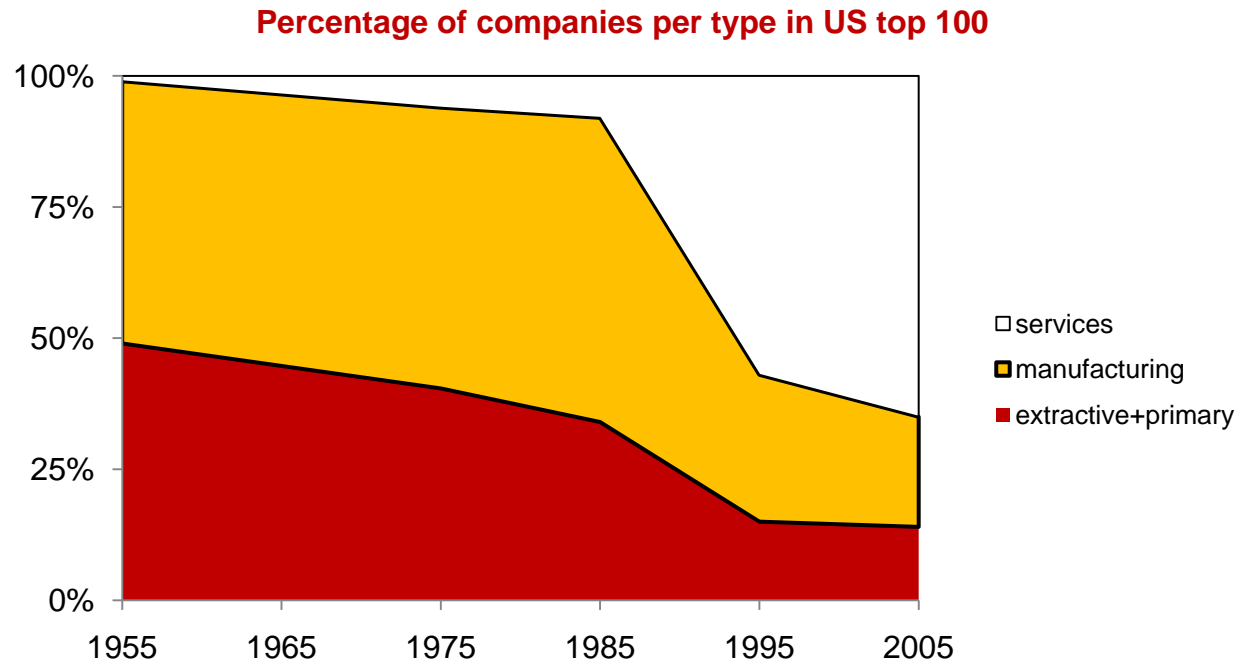
The major companies are those that extract natural resources or mass produce tangible widgets. These large Corporations, built upon heaps of Capital, dominate the economic landscape.

Fourth Revolution precursors

4 – Value creation



The graph shows the type of companies in the US top 100 companies over time.



While manufacturing and extractive companies represented 99% in the 1950's, service companies dealing with intangible products represent more than half the largest companies since the mid-1990's.

Isn't that a dramatic shift?

Fourth Revolution precursors

4 – Value creation



Not only do service companies selling non-tangible products represent today the mainstream of economic activity, but the actual content of manufactured products has shifted too towards more brain and intangible contents.

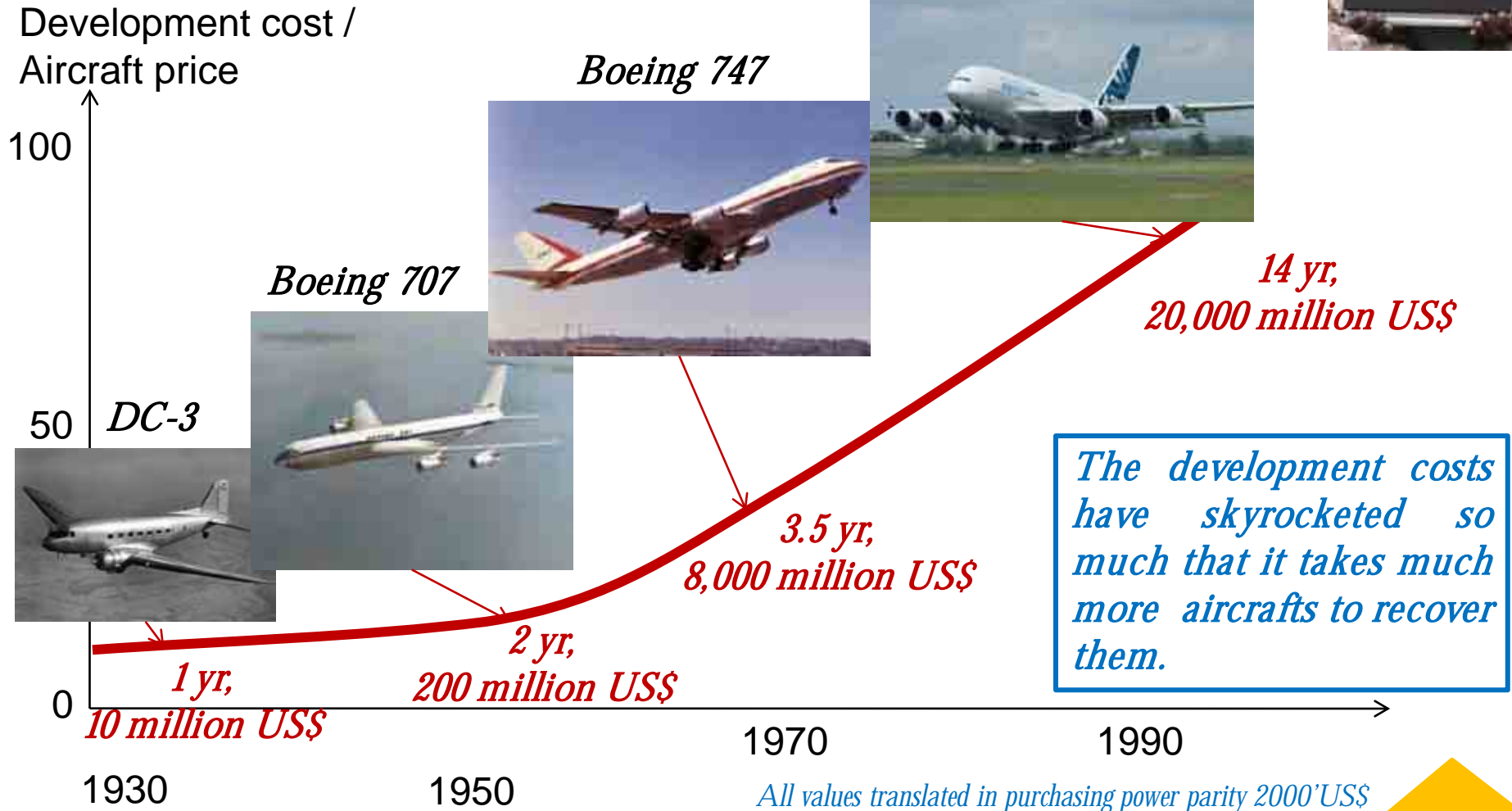
In the 1900's when you bought a car, most of the price was to compensate for the raw materials and the assembly work. The Ford T was developed by a few people in one year. Today, a large chunk of the cost of a car is engineering, marketing... in summary, intangible product. A new car model development is in the range of 1 to 3 billion US\$ over 2-3 years, essentially of brain work.

That's easy to observe. Let's take the example of commercial aircrafts. The ratio of the selling price over the development price (and duration) over time for the main innovative commercial aircraft successes show how much more studies and engineering and... brainpower goes into these products today.

Fourth Revolution precursors

4 – Value creation

Airbus A380



Fourth Revolution precursors

4 – Value creation



The value creation chain has shifted significantly since the 1990's in all countries, across industries.

Even “traditional” manufacturing industries have seen their internal value chain transformed toward intangible contents.

This gives us a direction for the economy beyond the Fourth Revolution.

While scarcity of material goods led to seeking the efficiency of mass production of standard material goods in the Industrial Age,

We will shift to an economy of material abundance, where value will be produced by the effectiveness of responding to the people's needs by producing customized services.



Conclusion

**Towards the Fourth
Revolution**

**It is not only inevitable,
it has already ignited**

Precursors and Revolution ignition

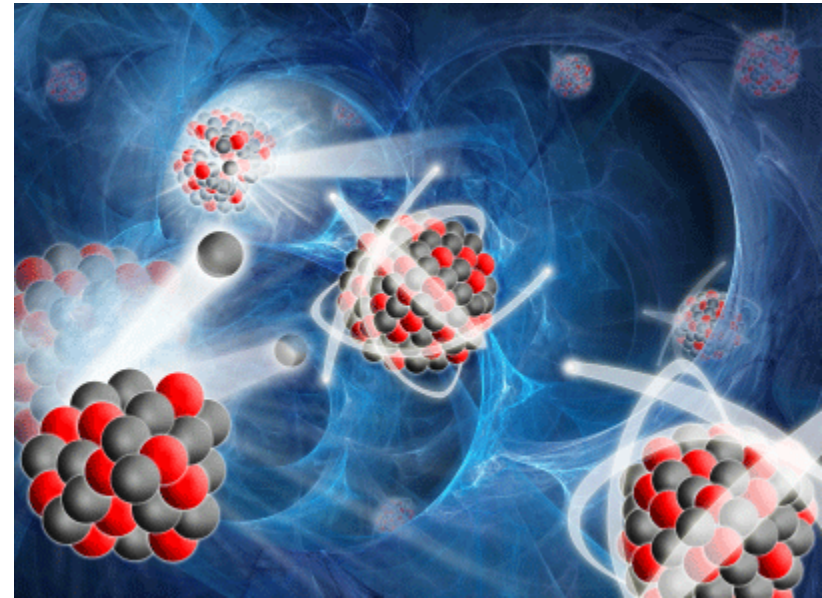


Serious precursors of the Fourth Revolution are there today.

Significant shifts in our value production system have already occurred.

People spend much time trying to determine what is THE factor that pushes humankind from one Age to the other, that triggers the chain reaction.

We now know, from Chaos theory, that it is a combination of factors which lead to the ignition of a Revolution.



It works like a nuclear chain reaction. When there is enough material in the right amount at the right time, a chain reaction ignites which releases incredible power.

The Fourth Revolution is not only inevitable. It has ignited.

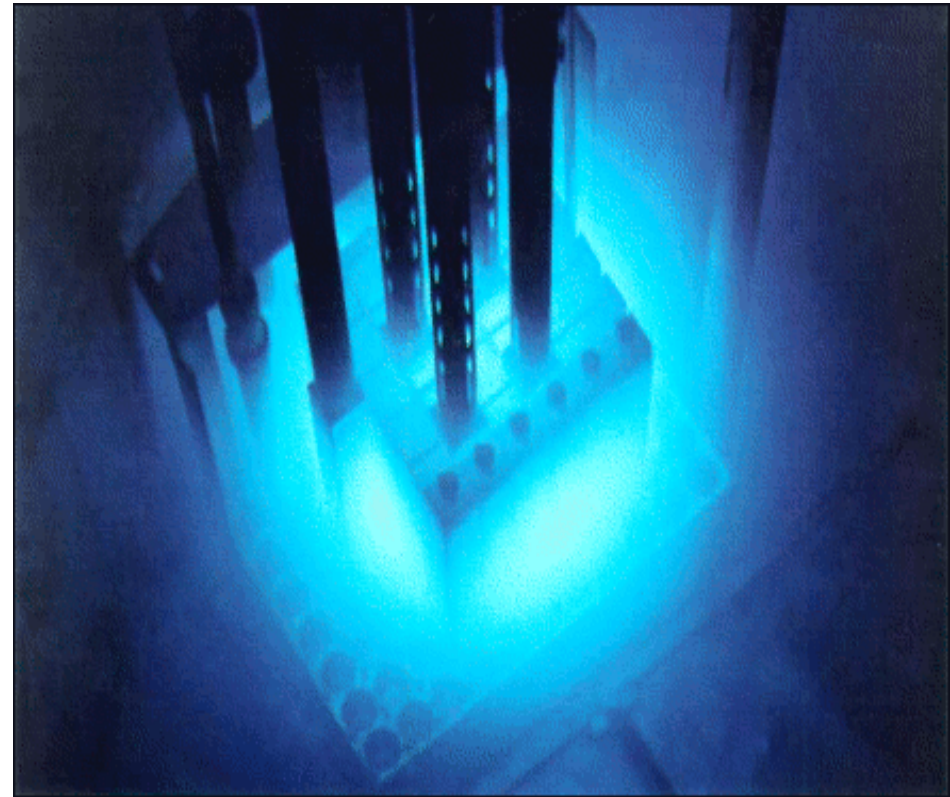


The Fourth Revolution is not just a concept.

Precursors are there for a while. Their impact has accelerated in the last 20 years.

The Fourth Revolution is already there.

The Fourth Revolution has ignited!



The Fourth Revolution has ignited. What does it mean?



In part V of the Manifesto we will look in more detail about what the Fourth Revolution means to organizations of the future.

Organizations will undergo dramatic changes. These changes will impact our daily life and how we consider and live our work life.



**Read part V of the Manifesto:
The Organization Revolution: from efficiency- management
to effectiveness-leadership**



To be
continued...

Read part V-
The Organization
Revolution