Humanities, Digitizing, and Economics

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INTRODUCTION

2020 mankind is in the middle of a technological revolution by the creative class that will fundamentally alter the way people live, work, and relate to each other. The scale, scope, and complexity of this transformation is unlike anything humankind has experienced before. In order to unfold it. This 'Fourth Industrial Revolution' was announced by the World Economic Forum (Schwab, 2017).

The First Industrial Revolution as previewed by Adam Smith in his 1776 'Inquiry into the Growth of Nations' was simply to mechanize production. This industrial breakthrough was characterized by novel inventions such as the 'Spinning Jenny' and the 'Power loom' that enabled increasing production with fewer man-hours. However, in a broader sense the new mechanical machines followed from the development of new energy sources such as coal, the steam engine and petroleum for use in combustion-engines.

The Second Phase of Industrialization in the 19th Century established Industrialization in Europe and North America. It was based on electric power to create mass production factories with highly specialized employees and far more complex products.

After World War II, a Third Phase of Industrialization arose from increased collaboration between industry and science and departments in private companies specialized in R&D. This collaboration invented electronics and information technology to automate production, pharmaceuticals, and chemicals as Plastics.

The Fourth Industrial Phase arises from the Third. It is symbolized by the Internet invented by Berner Lee in 1983. It fuses technologies that blurs the lines between the physical, digital, and biological spheres. There are three reasons why today's transformations driven by the creative class represent not merely a prolongation of the third industrial phase but rather the arrival of a Fourth and distinct one regarding *velocity*, *scope*, and *systems impact*. The speed of current breakthroughs has no historical precedent. When compared with previous industrial revolutions, the Fourth is evolving at an exponential rather than a linear pace. It disrupts almost every industry in every country. The breadth and depth of these changes herald the transformation of entire systems of production, management, and governance.

The possibilities of billions of people connected by mobile devices, with unprecedented processing power, storage capacity, and access to knowledge, are unlimited. These possibilities will be multiplied by emerging technology breakthroughs in fields such as artificial intelligence, robotics, the Internet of Things, autonomous vehicles, 3D printing, nanotechnology, biotechnology, materials science, energy storage, and quantum computing. These gains are in all that astonishing compared to the living conditions of ordinary simple peasants before the Industrial Revolutions that this Chapter aims to interpret the whole process in a broad socioeconomic context.

BACKGROUND

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This series of Industrial Revolutions have been that successful that it challenges the whole Ecosystem which implies a deep crisis in Economics, too:

- An intra-disciplinary polarization between the Chicago School of Economics aiming to restrict interference in the market forces to monetary policy (Interest rate and amount of money) versus the Austrian School of Economics aiming to strengthen psychological knowledge among economists (Menger, 1971)
- A contemporary representative of the Austrian School is the psychologist Kahneman (2011) who was awarded the Nobel prize of Economics 2002
- An International Student Initiative for Pluralism in Economics is formalized (ISIPE, 2014)

To understand the present crisis of Economics it is necessary to recognize the background in British Empiricism where philosophers as Bacon, Locke and Hume in the 18th Century claimed that the classical philosophy was biased by four types of prejudices:

- Conservatism

Human nature resists changes. Many cases show that when persons are offered either a cheaper or better service then are only a third immediately ready to adopt it (Heijden, 2019)

- Anchoring

Humans understand situations in a holistic way wherefore the core of the situation has a lot of impact even if it is irrelevant to the outcome. An important example is modern advertising where association of any product with a well known brand enhances sales (Erk et., 2002)

- Temper

People differ on the optimist-pessimist scale which affects their decision- making pattern. Optimists get easily engaged in new ideas/projects, while pessimists preview all the difficulties. For instance, reinforces the loss aversion of pessimists the amplitude of business cycles as advanced in the prospect theory (Kahneman & Tversky, 1979)

- Incomplete Knowledge

In the private sector specialist knowledge is recognized, while in collective affairs (politics) the moral standard is still supposed to be decisive in the democratic world. However, in the modern complex societies top qualifications are as important as in the private sector

Empirical science aims to prevent prejudices by empirical verification (falsification) of subjective theories, before they eventually are accepted as knowledge. This guides Economics as the field of pragmatism, too (James, 1907). The original intention of empiricism was to guide ordinary people towards a truthful life. However, it has primarily given a quantum leap to natural sciences such as physics, chemistry and medicine. By entrepreneurial ingenuity, positivist science is implemented in the complex products

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