

## A PRACTICAL VISION OF INDUSTRY 4.0<sup>1</sup>

### THE CHALLENGES OF THE 21<sup>ST</sup> CENTURY

In essence, the challenges of the 21<sup>st</sup> century will be the same they have always been: to satisfy customers and do it profitably. To satisfy customers, we will need to meet or exceed their expectations regarding those attributes of our product or service that they value. To do this profitably means that we must adjust the necessary costs and investments to the income.

A first key issue involves finding out what customers consider “valuable,” i.e., what are the attributes (efficiency, flexibility, speed of response, guarantee, visibility, closeness, innovation, etc.) for which they are willing to pay and how much. Valued attributes are changing dramatically in many businesses, and for this reason, it is essential to monitor them constantly.

Customer profiles are also changing. In developed countries, it is increasingly common to find *hyper-connected* clients who have access to vast amounts of information about any product or service at all times and in all places: vendors, prices, opinions, reviews, news, etc. Today, it is easier than ever to reach new clients. Conversely, clients can also find new suppliers in just a few clicks. This makes them increasingly demanding and decreasingly loyal. In the face of this new paradigm, companies need to create differential value, that is, more value than the competition.

For these reasons, companies must develop mechanisms to adapt to the changes taking place in their environments. They need to accommodate not only to customers, but also to social and cultural transformations, to the technology available in any given moment, and to new business models. Since the origin of humanity and throughout history, there have been change and technology advances. The tremendous global disruption this century will introduce is the acceleration of the speed of these changes.

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Companies live in an environment that is constantly changing with new proposals and in which business models are being rethought. Amazon ([www.amazon.com](http://www.amazon.com)) transformed product storage and service claims for suppliers. McDonald's ([www.mcdonalds.com](http://www.mcdonalds.com)) implemented ordering kiosks where customers could place their orders digitally and pay for them without the need for a cashier, thus streamlining processes and adding value. Zara ([www.zara.com](http://www.zara.com)) has reduced the cost of its operations while increasing its efficiency by digitally integrating its supply chain. Although Uber ([www.uber.com](http://www.uber.com)) and Cabify ([www.cabify.com](http://www.cabify.com)) are transforming the urban mobility sector with their business models, concepts such as *use rental* of electric cars threaten the existing balance. No business is free from the threat of an eventual disruption.

In conclusion, every company regardless of size and origin, must find a way to tackle digital transformation. According to one study by Standard & Poor's<sup>2</sup>, the average life expectancy of large companies is decreasing. In 1960, it was about 60 years while now it is barely 20 years. This means that 50% of large companies will have disappeared in 10 years. *Will SMEs follow suit?*

## OBJECTIVES OF THIS TECHNICAL NOTE

Most big industries are placing their bets on moving towards the 4.0 model one way or another. Small and medium enterprises are less likely to assimilate these concepts, though. It is the authors' opinion that SMEs must get ready to gradually incorporate and develop a 4.0 model to gain competitiveness and ensure their survival. This note is intended to raise awareness, inspire, and propose a guide to advance in this regard.

We will try to contribute ideas and methods to those managers who relate to the challenges we have described above and help them answer some of the questions they may have in mind: *can Industry 4.0 concepts help in keeping my business competitive? How should I tackle technological transformation in my company? What are the key levers? How can I fit this transformation into my company's strategic plan? What is the best time to start this change? At what pace should I do this? What human resources profiles will I need, and how can I make the team assume and drive transformation?* It is essential to answer these questions accurately in order to adapt to the environment and survive.

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<sup>2</sup> American Financial Services Company.

## TECHNOLOGY DEVELOPMENT

The development of technology is hyper-accelerating and with it economic, social, and business changes. It took the steam engine about 80 years from the time it was invented until it was generally used in companies. Today, such terms of democratization of technology would be unthinkable. We find another significant example in broadcasting: it took TV about 60 years to reach 100 million users; it has taken Netflix ([www.netflix.com](http://www.netflix.com)) less than a year. It looks like it is no longer enough to have the ability to adapt: companies must also anticipate what will happen in the future and prepare for it.

Also, for the first time in history, some technologies have reached homes before they have reached businesses. The widespread use of smartphones and similar devices, applications of all kinds, virtual assistants, and video games with which players can interact have all created a culture of use of technology that has spread like never before. However, many companies lag technologically far behind users, who are at the same time their employees and consumers. This had never happened before with previous technologies such as computers or robots.

## WHAT IS INDUSTRY 4.0?

The term Industry 4.0 was coined by the German government to describe **Intelligent Factories**: a vision of computerized manufacturing and processes that were automated and interconnected with each other and with people. Industry 4.0 represents a new way of organizing means of production (machines and people) through the digitization and automation of intelligent process and using innovative technologies. In industries 4.0, people interconnect with devices and management programs in a transversal way, thus shortening the distance between operational processes and consumers.

This new concept aims to predict, plan, monitor, and produce in an agile, integrated, and interconnected way, creating higher value for customers and leading companies to operate more efficiently and flexibly.

A brief overview of the previous industrial revolutions will help understand the concept of industry 4.0:

- The **First Industrial Revolution** took place at the end of the 18<sup>th</sup> century when the coal-fueled steam engines entered factories to replace human and animal force. Productivity increased dramatically, and the door opened to the first semi-automatic machines.
- The **Second Industrial Revolution** appeared at the turn of the 20<sup>th</sup> century, triggered by three factors mainly: the use of electrical power, advances in materials, and the standardization of work with the concept of the assembly line (pioneered by Henry Ford). Industries began to manufacture large batches of complex, high-quality