

# PORTUGUESE INDUSTRIALISATION: OVERCOMING A TROUBLESOME LEGACY

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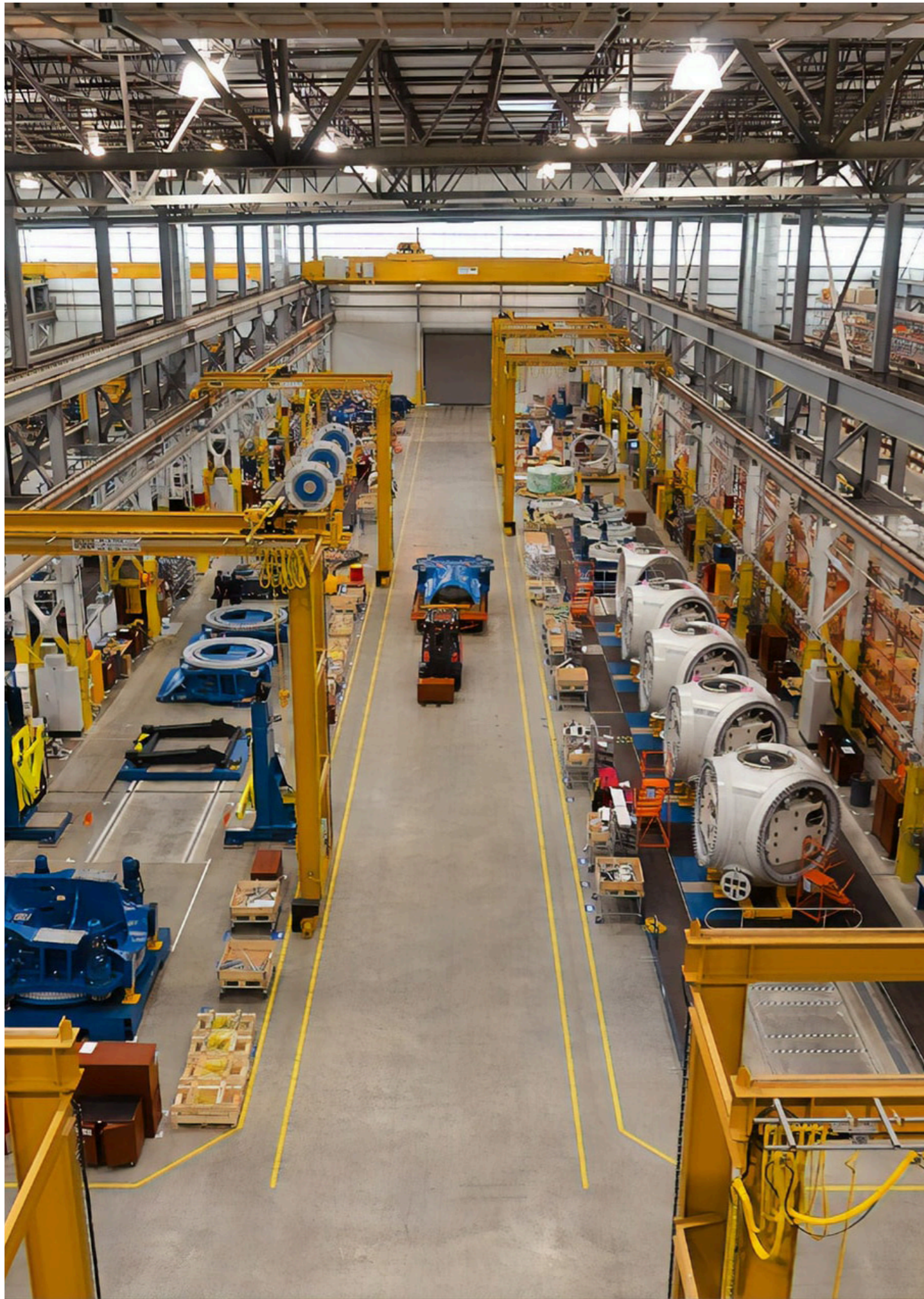
**With a past full of delays and constraints, with periods of widespread rejection to industrialization, as well as periods of accelerated economic development, Portugal reaches the fourth industrial revolution with a troubled legacy. However, Portugal is now ready to face the main challenges and contest a position among the more advanced countries, namely in terms of overcoming some of the more complex processes of the ongoing 4.0 revolution.**



The recent landscape of the Portuguese industry, based on the fourth Industrial Revolution, points out promising perspectives, supported by the outcomes and international prominence achieved in different sectors. However, the innovative and relevant position of many Portuguese industrial companies falls in with the lack of industrial fabric and activities, preventing us from positioning the country at the level of the most industrialised nations. These circumstances call for a reflection that takes us to the past on two levels. On the one hand, it leaves us optimistic, yet hanging over the consolidation of an effectively winning position - or even a top position, considering a few of these sectors. On the other hand, it allows us to recognise the success in overcoming a repeated historical position as subordinate, which achievement ought to be emphasised, mainly due to the intensity and permanence of many factors that form the heavy burden of our industrial past. A past characterised by delays, divergent strategies, hesitation or even disregard for the economic and social modernisation of the countries, which has conditioned the path of the Portuguese industry, keeping it, until very recently, in a much too modest position compared to the overwhelming majority of our European peers. We must address this aspect properly.

Having lost its way slightly from the first periods of the Industrial Revolution, Portugal could, just as many others have done, at a second glance, caught up with the industrialisation train, even benefiting from some advantages, and settling into the club of industrialised countries. We would only come to achieve this much later, more so due to necessity rather than sheer willpower - and in a context clearly conditioned by the political environment in which we found ourselves. In fact, and comparing to other countries, it took Portugal a century and half more (at the beginning of the 1950s) to reach a stage where the industrial sector surpassed agriculture, in terms of contribution to the GDP and working population. Moreover, only by the end of said decade - and after a first attempt, albeit frustrating, which took place after the end of the Second World War (spearheaded by Ferreira Dias, and the country's 1944-45 laws for electrification and industrial development and restructuring) - did the option for the industrialisation become genuinely accepted, notwithstanding the persisting hurdles. Finally, it was possible to settle the disagreement that opposed more progressive individuals, committed to a fast and generalised industrialisation of the country, to those that rejected this path, advocating the relevance of the agricultural activities and the modus vivendi associated with the rural world to the economic model framework, favoured by the Estado Novo





INDUSTRIAL REVOLUTION	INDUSTRIAL DEVELOPMENTS	START	PIONEER COUNTRY	RELEVANT FACTS IN PORTUGAL
First	Steam-powered machines	1780s	England	1820s: Establishment of the first steam-powered machines in factories <sup>[3]</sup>
Second	Mass production	1870s	United States of America	1944 – 1945: Approval of the electrification and industrial restructuring laws <sup>[4]</sup>
Third	Electronics, telecommunications and computers	1970s	United States of America	1975-7: Establishment of the first computers in factories <sup>[5]</sup>
Fourth / Industry 4.0	Cyber-physical Systems, Human-Machine Systems, Artificial Intelligence	2011	Germany	2017: Launching of the programme Indústria 4.0. (i4.0) <sup>[6]</sup>

Table 1 - Industrial Revolutions <sup>[1][2]</sup>

Following the trends and the international environment, a new stage of sustained and accelerated economic growth began, until 1973. During this period, Portugal reached unprecedented growth rates in national history, more so at the manufacturing sector level, while converging and coming close to more developed European countries, partially recovering from the delays. This growth and modernisation cycle incorporated structural changes, notwithstanding the resilient social and political resistance forces that, by persisting, had negatively conditioned the rhythm and reach of the modernising transformations, including at the industrial level.

Among other factors, it is important to recall the prevailing corporate context during the Estado Novo, and point out one of the most determining factors in the nature and dynamics of the Portuguese industrial fabric, which would lead to deep and long lasting repercussions: the industrial conditioning. The first experience of industrial conditioning came to light in Portugal in July 1926, during the Military Dictatorship, through a decree that altered the cereal products regime, encompassing the flour sector, promoting the restructuring and leading to its concentration. Despite emerging as an exceptional measure, the industrial conditioning expanded and became the general regime, lasting until the end of Estado Novo. According to this regime, it was not possible to create any industrial organisation, nor to modify the production capacity of existing businesses, without authorisation by the Government; in addition, companies should, under all circumstances, guarantee at least 75% of their capital originated in Portugal. Are there a few people who remember this? One should not dismiss its relevance or forget about its impact, particularly during the post-war period: among other

aspects, and very briefly, this decree meant that more than half of the new business requirements, including proposals for new industrial activities, were rejected immediately. In other words, all applications considered inconsistent with the prevailing reasoning behind any economic policy of Salazar's dictatorship, or even those against the established interests. The end of the industrial conditioning took place only a few decades ago, following the revolution of April 25, 1974.

Much more could be said regarding the 40-year industrial conditioning legacy, namely about all the actions that it limited and effectively prevented, in terms of dynamics and innovation - with long lasting repercussions to our industrial fabric composition, nature and behaviour. That is why it is important to recall historical revival, of a not so distant past, showing how proud we are of recent achievements of the Portuguese industry, while focusing on more comprehensive limits and opportunities regarding the paths to ongoing or future industrialisation. Another aspect worth mentioning as we recall our troubled legacy is the relevance of training and the contribution of a scientific and technical-based knowledge for the establishment of the manufacturing fabric, particularly the industrial. Within this scope, it is important to highlight the delays regarding the fundamental education of the population in general and the specialised training of the Portuguese workforce, as well as the overdue nature and decisions made in terms of education planning and definition of different fields of engineering - together with the resistance to innovation, the adoption of science-based knowledge, and technological development; all of these are elements that characterise the majority of the industrial fabric, stemming from the low level of training of most entrepreneurs.

Simply put, the number of engineers with degrees in Portugal only improved significantly over the past few years, (from 356 in 1950/51, to 622 in 1974/75, and to 3500 in 2001/02). Moreover, the generalised implementation of engineering in factories, and in the manufacturing sector, together with the engineers'





entry in these markets, is also very recent. In addition, and still within this context, the changes observed in Portugal in the not so distant past bear relative and absolute prestige and dimension. Moreover, there are many reasons why it is important to point out the successful dynamics of the so-called traditional industrial activities, which currently take up a relevant position in our manufacturing sectors, and even an internationally competitive position, with emphasis on the footwear, textile and mould-making sectors. Also noteworthy is the impact and transformation stemming from the Portuguese economy and society's internationalisation processes during the last decades. Once more, we recall the legacy of a long period of authoritarianism and autarky brought down by the April 25 revolution, in 1974. The democracy has established itself as the European choice par excellence, presenting opportunities for Portugal's integration in the current European Union, while opening the country to the world. After less than half a century of democracy, during which time the transformation process of the Portuguese society was both quick and profound, the Portuguese industry has now the capacity to face the main challenges and contest a position among the more advanced countries, namely in terms of overcoming some of the more complex processes of the ongoing 4.0 revolution.

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