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https://www.100test.com/kao_ti2020/227/2021_2022__E5_A4_A7_E5_AD_A6_E8_8B_B1_E8_c82_227613.htm Text Alvin Toffler writes about the fact that technology is advancing much faster today than ever before in history. The symbols of technology are no longer factory smokestacks or assembly lines. As we are headed for the future, the pace will quicken still further. The Fantastic Spurt in Technology

A. Toffler To most people the term technology conjures up images of smoky steel mills or noisy machines. Perhaps the classic representation of technology is still the assembly line created by Henry Ford half a century ago and made into a social symbol by Charlie Chaplin in Modern Times. This symbol, however, has always been inadequate and misleading, for technology has always been more than factories and machines. The invention of the horse collar in the middle ages led to major changes in agricultural methods and was as much a technological advance as the invention of the Bessemer furnace centuries later. Moreover, technology includes techniques, or ways to do things, as well as the machines that may or may not be necessary to apply them. It includes ways to make chemical reactions occur, ways to breed fish, plant forests, light theaters, count votes or teach history. The old symbols of technology are even more misleading today, when the most advanced technological processes are carried out far from assembly lines or blast furnaces. Indeed, in electronics, in space technology, in most of the new industries, quiet and clean surroundings are characteristic --

even sometimes essential. And the assembly line -- the organization of large numbers of men to carry out simple repetitive functions -- is outdated. It is time for our symbols of technology to change -- to catch up with the quickening change in technology itself. This acceleration is frequently dramatized by a brief account of the progress in transportation. It has been pointed out, for example, that in 6000 BC the fastest transportation available to man over long distances was the camel caravan, averaging eight miles per hour (mph). It was not until about 1600 BC when the chariot was invented that the maximum speed was raised to roughly twenty miles per hour. So impressive was this invention, so difficult was it to exceed this speed limit, that nearly 3,500 years later, when the first mail coach began operating in England in 1784, it averaged a mere ten mph. The first steam locomotive, introduced in 1825, could have a top speed of only thirteen mph and the great sailing ships of the time labored along at less than half that speed. It was probably not until the 1880s that man, with the help of a more advanced steam locomotive, managed to reach a speed of one hundred mph. It took the human race millions of years to attain that record. It took only fifty-eight years, however, to go four times that fast, so that by 1938 men in airplanes were traveling at better than 400 mph. It took a mere twenty-year flick of time to double the limit again. And by the 1960s rocket plants approached speeds of 4,000 mph. and men in space capsules were circling the earth at 18,000 mph. Whether we examine distances traveled, altitudes reached, or minerals mined, the same accelerative trend is obvious. The pattern, here and in a thousand

other statistical series, is absolutely clear and unmistakable. Thousands of years go by, and then, in our own times, a sudden bursting of the limits, a fantastic spurt forward. The reason for this is that technology feeds on itself. Technology makes more technology possible, as we can see if we look for a moment at the process of innovation. Technological innovation consists of three stages, linked together into a self-reinforcing cycle. First, there is the creative, feasible idea. Second, its practical application. Third, its diffusion through society. The process is completed, the loop closed, when the diffusion of technology embodying the new idea, in turn, helps generate new creative ideas. Today there is evidence that the time between each of the steps in this cycle has been shortened. Thus it is not merely true, as frequently noted, that 90 percent of all the scientists who ever lived are now alive, and that new scientific discoveries are being made every day. These new ideas are put to work much more quickly than ever before. The time between the first and second stages of the cycle -- between idea and application -- has been radically reduced. This is a striking difference between ourselves and our ancestors. It is not that we are more eager or less lazy than our ancestors, but we have, with the passage of time, invented all sorts of social devices to hasten the process. But if it takes less time to bring a new idea to the marketplace, it also takes less time for it to sweep through the society. For example, the refrigerator was introduced in the United States before 1920, yet its peak production did not come until more than thirty years later. However, by 1950 -- in only a few years -- television had grown from a laboratory novelty

to the biggest part of show business. So the interval between the second and third stages of the cycle -- between application and diffusion -- has likewise been cut, and the pace of diffusion is rising with astonishing speed. The stepped-up pace of invention, application and diffusion, in turn, accelerates the whole cycle still further. For new machines or techniques are not merely a product, but a source, of fresh creative ideas.

NEW WORDS

fantastica. unbelievably large or great 极大的 ; 难以置信的 spurtn. a short sudden increase of activity, effort or speed. burst 猛增 ; 突然加速 ; 迸发 conjure vt. cause (sth.) to appear in the mind 唤起 ; 使想起 smokya. giving out much smoke milln. factory or workshop classica. typical 经典的 , 典型的 representationn. sth. that represents 代表 represent vt. symboln. sign, mark, or object which represents a person, idea, value, etc. 象征 inadequatea. not adequate. insufficient misleadinga. causing wrong conclusions. causing mistakes mislead vt. inventionn. the act of inventing. sth. invented horse collar 马轭 agriculturalala. of agriculture furnacen. 熔炉 , 炉子 apply vt. put into use or operation 应用 , 运用 occur vt. take place. happen breed vt. raise (esp. animals) 饲养 voten. 选票 ; 选举 (权) advanceda. far on in development. modern blastn. 鼓风 ; 送风 blast furnace 鼓风炉 ; 高炉 electronicsn. 电子技术 ; 电子学 surroundingsn. (used with a pl. v.) everything around and about a place. conditions of life 环境

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