

# Artificial intelligence and society: a furtive transformation

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**Abstract** During the 1950s, there was a burst of enthusiasm about whether artificial intelligence might surpass human intelligence. Since then, technology has changed society so dramatically that the focus of study has shifted toward society's ability to adapt to technological change. Technology and rapid communications weaken the capacity of society to integrate into the broader social structure those people who have had little or no access to education. (Most of the recent use of communications by the excluded has been disruptive, not integrative.) Interweaving of socioeconomic activity and large-scale systems had a dehumanizing effect on people excluded from social participation by these trends. Jobs vanish at an accelerating rate. Marketing creates demand for goods which stress the global environment, even while the global environment no longer yields readily accessible resources. Mining and petroleum firms push into ever more challenging environments (e.g., deep mines and seabed mining) to meet resource demands. These activities are expensive, and resource prices rise rapidly, further excluding groups that cannot pay for these resources. The impact of large-scale systems on society leads to mass idleness, with the accompanying threat of violent reaction as unemployed masses seek to blame both people in power as well as the broader social structure for their plight. Perhaps, the impact of large-scale systems on society has already eroded essential qualities of humanness. Humans, when they feel "socially useless," are dehumanized. (At the same time, machines (at any scale) seem incapable of emotion or

empathy.) Has the cost of technological progress been too high to pay? These issues are addressed in this paper.

**Keywords** Automation · Artificial intelligence · Emotion · Global environment · Human · Large-scale systems · Machine-aided thinking · Society · Technology

## 1 Introduction

Alan Turing (1950) hypothesized that artificial intelligence (AI) will be a reality when a human communicating with a machine will not be able to distinguish the machine's response from a human's response.

For decades, Turing's brilliant observation has been a hallmark of characterizing AI. However, advances in hardware, communications, and software have moved human interactions with machines in a direction which could not have been anticipated by Turing or his contemporaries.

In part, the development of communications followed by emergence of new capabilities in the physical realm has driven an alternative form of human-machine interaction resembling AI in some ways.

World War 2 and its aftermath created unprecedented human mobility, particularly in the United States. Movement of people called for new forms of communication. As recently as the 1950s, the Morse code and teletype formed a backdrop for aviation.

With the junction transistor and integrated circuits, mainframe computers were developed. Though a few earlier computers resembling mainframes had been developed using vacuum tubes, the failure rate of tubes was too high for meaningful computing. Those early computers were sufficiently powerful to illustrate the potential for reliable

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