



THE ECONOMIC PAMPHLETEER
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Technology: Good, bad, or neutral?

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Is technology good, bad, or neutral? The prevailing sentiment seems to be that technology is neither good nor bad, but is simply a tool that can be used for either. However, once a technology has been developed, its net effects will be one or the other. The consequences will depend on the intention, or perhaps inattention, with which a technology is developed and applied.

The *Encyclopedia Britannica* (n.d.) defines technology as “the application of scientific

knowledge to the practical aims of human life” (para. 1). The basic purpose of technology, whether mechanical, biological, or digital, is to allow people to do things easier, faster, or better. Whether a technology is good, bad, or neutral depends on whose intentions or aims are met and who suffers any unintended consequences. The net effects of a technology, considering both good and bad, is determined not only by whether it contributes to the practical aims of some, but whether it

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*Why an **Economic Pamphleteer**? In his historic pamphlet *Common Sense*, written in 1775–1776, Thomas Paine wrote of the necessity of people to form governments to moderate their individual self-interest. In our government today, the pursuit of economic self-interest reigns supreme. Rural America has been recolonized, economically, by corporate industrial agriculture. I hope my “pamphlets” will help awaken Americans to a new revolution—to create a sustainable agri-food economy, revitalize rural communities, and reclaim our democracy. The collected *Economic Pamphleteer* columns (2010–2017) are at <https://bit.ly/ikerd-collection>*

contributes to the betterment of society or life in general.

Albert Einstein wrote, “I believe that the abominable deterioration of ethical standards stems primarily from the mechanization and depersonalization of our lives—a disastrous byproduct of science and technology. *Nostra culpa!* [We are to blame!]” (AAP FactCheck, 2019, para. 7). I agree. I believe the deterioration of civil society has been a result of inattention to the likely negative consequences of well-intended technologies that depersonalize our relationships with each other and with the earth. The “abominable deterioration” of ethical standards in turn facilitated the degradation of both society and nature, which now threaten the sustainability of human life on earth.

American agriculture provides a prime example of the ecological and social consequences of developing and applying particular kinds of technologies—specifically, industrial technologies. The mechanical and chemical technologies that facilitated agricultural industrialization served the aims of corporate agribusiness investors and a few surviving farmers, but millions of other farmers, farm and food system workers, and consumers have suffered the negative consequences. As I have explained in previous columns, the growing ecological and social threats to agricultural sustainability are the “disastrous byproducts” of using a particular approach to science to develop a particular type of technology: industrial technologies. Even worse, creating cheap industrial agricultural commodities did not accomplish the intended purpose of alleviating malnutrition and instead has fueled an epidemic of obesity, diabetes, heart disease, and a variety of other diet-related illnesses.

The only solutions offered by defenders of industrial agriculture rely on more sophisticated industrial technologies. The technologies idealized by advocates of “sustainable intensification,” for example, might slow the process of degradation, but the productive capacity of earth’s agricultural resources eventually would still be depleted or

permanently damaged (Ikerd, 2021). Regardless of whether future agricultural technologies are mechanical, biological, or digital, if they facilitate the continuation of an industrial agri-food system, the negative consequences will be basically the same.

I believe at least two tests should be used to assess whether the net effect of any new technology is likely to be positive, negative, or neutral. First, the adoption of a new technology by some should not force others to do likewise, but instead allow others to freely choose either to use or not use it. In other words, the benefits of a new technology for some should not be gained at the expense of others. We have seen the disastrous consequences of failing to meet this test in agriculture, as was seen previously in manufacturing. Industrial technologies were developed to make

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production easier, faster, and less costly with little regard for their impacts on farmers, farmworkers, or factory workers—or even whether the final products would actually be better for consumers. The consequences for migrant workers in the fields and confinement animal feeding operations today are little different from the consequences for factory workers in the times of Adam Smith.

The primary economic advantages of specialized and mechanized industrial operations arise from the ability to produce more output with smaller, less-skilled and lower-paid workforces. The lower costs of production, made possible by lower labor costs and consolidation of management, force producers to adopt each new cost-saving technology in order to survive economically. Industrial manufacturing resulted in larger corporate organizations and fewer good-paying jobs. Industrial agriculture resulted in fewer and larger factory-like farms and fewer farmers. In agricultural economics, this is called the “technology treadmill” (“Technology treadmill,” 2020). With each new technology farmers were forced to accept, the surviving farms were larger in size and fewer in number. The demise of family farming was another

“disastrous byproduct of science and technology.”
And we certainly are to blame!


This leads to the second test for new technologies: A technology should reduce human drudgery but should not replace human thinking. The quality of employment opportunities, and of human life in general, depends on the uniquely human capacities for intentionality and agency. Intentionality is the ability to assess particular situations and develop plans of action to solve particular problems or take advantage of unique opportunities. Agency is the ability to carry through with intention, making any necessary course corrections during implementation. When humans are deprived of the opportunities to exercise these unique capacities, they lose much of their capacity to contribute to either the economy or society. Their quality of life is diminished. Adam Smith acknowledged the deskilling of an industrial workforce as a “dehumanizing” (GoodReads, n.d., para. 1) process and warned of the negative social consequences of industrial production.

Reducing or removing the drudgery from production frees people’s time and energy to focus on the development and use of uniquely human capacities for intentionality and agency. Every hour and calorie spent on non-thinking tasks is an hour and calorie less available for thinking about how to make the essential tasks of life easier, faster, or better. Farming technologies such as large round hay balers and portable electric fencing for livestock producers and paperpot transplanters and lightweight row covers for market gardeners are examples of mechanical technologies that have reduced the drudgery of farming without replacing

the thinking. These technologies allow farmers to perform essential tasks faster and easier so they have the time and energy to think about how to do other things better—or simply to enjoy life.

That being said, technologies should not separate the working from the thinking. Sustainable farmers must be “thinking workers and working thinkers” (paraphrasing the late Richard Thompson, an Iowa farmer and early sustainable agriculture advocate). As Wendell Berry (1990), the farmer/writer/philosopher puts it, “if agriculture is to remain productive, it must preserve the land and the fertility and ecological health of the land; the land, that is, must be used well. A further requirement, therefore, is that if the land is to be used well, the people

who use it must know it well, must be highly motivated to use it well, must know how to use it well, must have time to use it well, and must be able to afford to use it well” (p. 147). Good farming technologies must allow farmers to use the land well, which requires a personal sense of connectedness with their land.

The technological challenges of the future will be to develop new mechanical, biological, and digital technologies that empower, rather than oppress, the people who choose to use them. The developers of these new technologies must also heed Einstein’s warning of the “abominable deterioration of ethical standards” that stems primarily from the mechanization and depersonalization of work and of human life. Technologies of the future should be designed to reduce the inevitable drudgeries of life without depersonalizing our relationships with each other or with the earth. 

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