Economic Effects of C.H.A.N.G.E.s in Innovation, Technology, and Culture

"We regret to inform you that your position has been eliminated" are words one might hear in a nightmare. For 400 employees of the brokerage company Acrisure, which is based in Grand Rapids, these words were not a bad dream; they were reality (Souter). Two hundred of the laid-off employees are members of our community, here in West Michigan (Landstra). While the layoffs directly affect these individuals and their families, the consequences have a ripple effect through the broader West Michigan community. According to Paul Isely, Associate Dean and Professor of Economics for the Seidman College of Business at Grand Valley State University, the Acrisure layoffs are likely to cost the Grand Rapids economy $20 to $30 million dollars (Landstra).

In a statement, Acrisure explained that they "will reduce the size of our accounting workforce as the company continues to advance in technology and automation, which are driving systemic change across industries" (Souter). This is not the first time changes in technology have led to job losses or to changes in the economy. In the 1990s, computers and the Internet transformed jobs, companies, and the economy. In the 1800s—when Grand Rapids was little more than the trading post and blacksmith shop built by Louis Campau (Mabie)—the steam engine, factory assembly lines, and the Spinning Jenny revolutionized work, industry, and society.

Rapid changes in innovation, technology, and culture are affecting the local and global economies in many ways. These ways can be summarized using the acronym **C.H.A.N.G.E.**:

Cognitive leverage

Hired workers

Accumulation of wealth

Networks of distribution

Glocalization

Energy and Environment

Some of the features of today's economy are similar to the economic impacts of the Industrial Revolution. Others are different. This essay explores each of the six ideas in **CHANGE** while comparing and contrasting these ideas with what took place in the 1800s during the Industrial Revolution.

Today's economy is increasingly driven by the mastery of **cognitive leverage**, which can be used to produce mostly intangible products and services (Meyer). Although technological advances in the Industrial Revolution also increased productivity, 18th century innovation involved the mastery of physical mechanics, which allowed greater efficiency in producing tangible products. Cognitive leverage is the use of tools and principles to increase the output of human thought, mainly through the use of Artificial Intelligence (AI). In 2026, products are often intangible, taking the form of efficiency, data, or a solution. This has an immense impact on both the local and global economies ("How Does Innovation"). Today's innovation opens up new markets and business models, which give many opportunities to people who want to create their own online or tech business. This alters the local economy because it is creating numerous jobs and new types of products with unique value. This alters the global economy because innovation fosters global economic growth. Rapidly rising innovation leads to higher productivity, which means that the same amount of input will create larger amounts of output. With higher productivity, more resources become available for further innovation, creating a cycle of innovation leading to efficiency, ultimately supporting a growing economy.

Today's economy is negatively affecting many **hired workers** in the short term, such as the Acrisure accountants who were laid off. Although many people lost their jobs during the Industrial Revolution, these were primarily blue collar workers. Today, white collar workers are at heightened risk of losing their jobs due to AI (Deckker and Sumanasekara). In fact, AI is projected to potentially eliminate half of all entry-level white-collar jobs within the next five years by automating cognitive, routine, and repetitive administrative tasks (VanderHei and Allen). Losing a job is a horrible experience for anyone. It is important for local organizations to provide opportunities for these workers to gain new skills so they can find new and better jobs. Through re-training programs, the negative direct effect on workers as well as the negative ripple effect on the local economy due to layoffs can be mitigated.

Today's economy is characterized by uneven **accumulation of wealth**, in which a small number of people and companies at the leading edge of technology and AI development are gaining a disproportionate share of wealth. Although the Industrial Revolution also led to a concentration of wealth among a small number of factory owners, today's technology simultaneously creates opportunities for more people and more companies to contribute to and benefit from AI. An estimated 91% of Americans ("Mobile Fact Sheet") and 60% of the worldwide population ("How Many Smartphones") have access to AI through a smartphone with Internet access. The spread of technology access makes possible a bottom-up surge in the economy in which the economy focuses on individual businesses, either in addition to or instead of a few primary leading companies. At the same time, there is a risk of a global monopoly in which only a few entities capture the largest share of a new value produced by AI. It is important to establish local and global economic policies that both reward entrepreneurs at the forefront of innovation and allow small businesses to flourish.

Today's economy has a new **network of distribution** of intangible products through high-speed data transfers. Although goods could be distributed more widely during the Industrial Revolution than ever before, those goods were physical goods that took space and required energy to be transported. Many of today's goods are intangible, including code and other digital assets. These products can be distributed electronically, bypassing the requirements of traditional transportation. Other goods are physical, tangible products, but ones that can be produced locally through 3D printers. For instance, a 3D print code created in West Michigan could be distributed anywhere in the world so that the end goods could be produced locally. Conversely, 3D print codes created anywhere in the world could be used to produce goods here in Grand Rapids. This significantly alters the global economy because, before this technological transfer was possible, huge shipments were required to transport thousands of identical items that can now be created by 3D printers at local manufacturing places.

Today's economy is catering to consumer demands through **glocalization**, which starts at with global standardization and then adds local customization to better fit particular cultures (Bullard). This contrasts with the Industrial Revolution when production shifted from goods being individually made by craftspeople to goods being mass produced using machines. Technology changes the economy, but even more important are consumers and culture. Consumers are the ones who really hold the steering wheel, shifting market demands from mass production to highly personalized commerce. Today, a trend or viral product can spread in seconds through one social media post. Therefore, the local and global markets must respond rapidly to capitalize on opportunities that pop up. At the same time, many people increasingly value authenticity, custom goods, local products, and connections to other people through their purchases. Consumers are being intentional. They prioritize brands that align with their local and

cultural beliefs and values. This is a reaction to mass production and generic goods. Many consumers are willing to pay extra for products that are meaningful because they have a human background. Today's businesses are likely to have the most success if they find an optimal balance between standardization and customization.

Today's economy and the technological changes that are driving it have unprecedented consequences on **energy and environment**. During the Industrial Revolution, many cities became gray with soot from the smokestacks of factories. Today, an enormous amount of resources and energy are required for AI. A single prompt in ChatGPT uses about a cup of water to cool data processors (Verma and Tan). A single AI data center facility uses about the same as much energy as a town of 100,000 residents (Nguyen and Green 3). Some people and businesses are eager to build a data center because it would bring jobs and a boost to their local economy. However, it is essential to weigh these benefits against the environmental costs. AI is not going away. Therefore, it is important to continue to innovate to decrease the local and global environmental footprint of technological advances and to educate people how to use AI wisely.

To conclude, the local economy and global economy are growing in new ways due to the rapid **C.H.A.N.G.E.**s in innovation, technology, and culture: **C**ognitive leverage, **H**ired employees, **A**ccumulation of wealth, **N**etworks of distribution, **G**localization, and **E**nergy/environment. Along with this growth comes growing pains, experienced acutely by the 400 Acrisure employees whose jobs were lost due to advances in AI. Some people might wish that the clock could be turned back to avoid the current technological revolution. Not only would this be impossible, but it would also be disadvantageous. Just like we would not want to rewind time to forego assembly lines and all the goods they produced, we would not want to live without the advances AI makes possible. Instead, our local economy should adapt to these changes by

being at the forefront of the new economy. Grand Rapids should embrace these changes by developing a workforce that uses AI to advance productivity, which will, in turn, boost the local and global economy.

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