The first Industrial Revolution introduced machines into manufacturing. The second saw the emergence of assembly lines. The third brought robots into industry. In recent years, there has been much talk of a fourth Industrial Revolution. The team at Walter Scott wanted to get under the hood of this nascent technology. Here, it highlights how this may influence businesses in the year ahead and beyond.

Technological innovation continually shapes the consumer, information and service sectors. A very visible example is the way the Internet and smartphones have changed how we communicate, socialize and shop in under a decade, while manufacturers are using data to revolutionize their business models.

This change is variously referred to as the fourth Industrial Revolution, the industrial Internet of things, smart automation, the industrial Internet, or our preferred term: Industry 4.0.

Industry 4.0 uses smart technology to enhance manufacturing processes, making them more efficient and more easily adaptable to customer needs. It promises the integration of automation, data, analytics and manufacturing to deliver new business and operating models. Computers and robotics will come together in an entirely new way in “smart factories.” Robots will be connected remotely to digital systems equipped with machine learning algorithms. These systems will analyze information coming from the shop floor and control the production line, making decisions with minimal input from human beings.

In our view, Industry 4.0 has far-reaching consequences for companies. However, at this nascent stage, it remains impossible to predict the speed and power of the adoption curve. Despite this uncertainty, we see some important emerging trends:

1. The potential for industrial companies to become service providers.

2. The likelihood of exponential growth in the demand for silicon chips as there is likely to be a greater need for computer power storage—both in the cloud and on the ground—in devices and production facilities.

3. To take advantage, companies will not only require an understanding of the underlying technological processes, but they will, crucially, also require manufacturing know-how and the physical infrastructure needed to create products.
STRONG FOUNDATIONS

This also means ensuring companies have the right foundations in place. Many will increasingly rely on corporations that can deliver the core IT infrastructure and software services they need, potentially creating a waterfall of opportunities for incumbent technology firms. The increasing amount of data being created by industrial companies is already generating new and heightened security requirements. Embracing connectivity will increase an organization’s vulnerability to data hacking. We are starting to see technologies once used only by the military and intelligence services being applied to industrial data. Existing technologies will also form part of the Industry 4.0 landscape. Companies with dominant market positions in those areas are well placed to meet emerging demand from the manufacturing industry. For this reason, some “legacy” technology companies will continue to be the winners in Industry 4.0.

LABOR IMPACT

Future production lines will employ a fraction of the people currently needed, so the impetus for production to happen in low-wage locations may become less important. There may also be a greater need for software engineers who can monitor increasingly complex systems on-site and less need for manual labor.

For these reasons, Industry 4.0 could mean greater investment in production within Europe and the U.S. As a consequence, the production shift in the late 20th and early 21st centuries to low-wage economies such as Mexico and Bangladesh may be reversed. Inevitably, a revolution on this scale will likely shift economic distribution, both from country to country as well as from labor to capital. This could be the most material long-term consequence of Industry 4.0.

As with any revolution, there will be winners and losers. We believe a successful “future-proof” strategy will depend on the agility and vision of management teams, investment attitudes and existing infrastructure.