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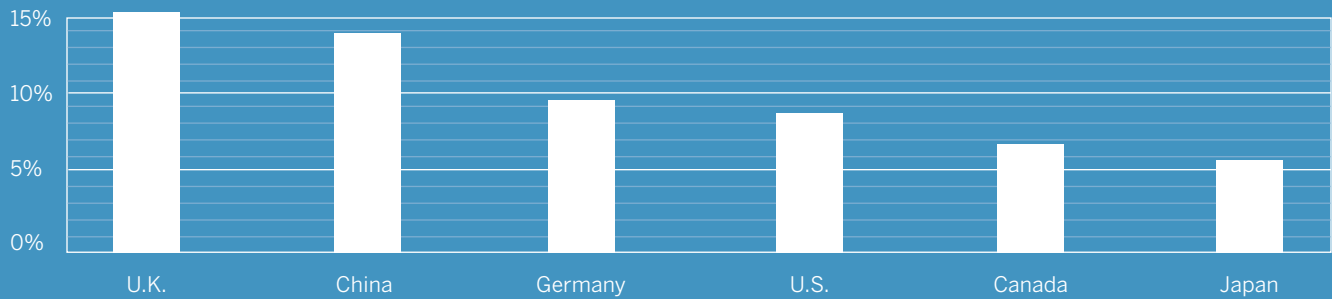
A Changing Retail Landscape

Continued growth in e-commerce sales, and advancements in automation have retailers adopting new technologies to increase efficiency, stay competitive, and win the loyalty of consumers. The effect is an evolution in the way that consumers shop and retailers deliver.

At Chevy Chase Trust, we research powerful and disruptive ideas—like the changing retail landscape—and turn them into investment opportunities for our clients. Explore some of our research and insights, and to learn more, visit us online at ChevyChaseTrust.com.



E-COMMERCE AS A PERCENT OF TOTAL RETAIL SALES (2016)*



FACTS

From 2015 to 2016, the number of Amazon robots increased 50%. At the same time, the number of Amazon workers also grew by 50%.

Automation in the \$100 billion textile industry could double output per hour while reducing labor by 90%.

With e-commerce retail sales accounting for almost all retail sales growth, construction of new retail space declined by 20% in the U.S. in 2016.

In 2016, average sales per square foot for traditional retail was \$214, compared to average sales per square foot for an e-commerce fulfillment center of \$1,839.

Last-mile distribution matters. In Amazon's top 25 markets, its fulfillment centers are almost three times closer to the end consumer than other markets.

INSIGHTS

Fears of technological progress leading to technological unemployment have proven unfounded. In fact, automation has had little effect on overall employment but has made workers more productive and increased their wages.

Mass customization, reduced inventory and production efficiencies will contribute to deflationary pressures.

Retailers are shifting to smaller footprints with less inventory and more emphasis on stores as hubs for brand and service experiences.

It is going to become increasingly difficult for traditional brick-and-mortar retailers to compete.

Changing consumer expectations force supply chain models to become faster and more efficient. Last-mile distribution centers located close to the end consumer will result in faster fulfillment at lower costs.

ACTIONS

- Invest in a small urban industrial REIT believing this property type is limited, the sector is fragmented and the market is not fully valuing scarcity, proximity and future demand for small urban warehouse space.
- Invest in a market leader in robotics, an early adopter of artificial intelligence and leading manufacturer of collaborative robots that work side by side with humans.

- Invest in the market leading producer of Radio Frequency Identification tags which are increasingly being attached to clothing, food items and healthcare supplies. New applications across industries will allow electronically stored information to be read and tracked to monitor manufacturing, transportation and sales.

RESULT

Studying the secular development of a trend like the changing retail supply chain leads to seemingly unrelated but connected investment opportunities across different industries and sectors.