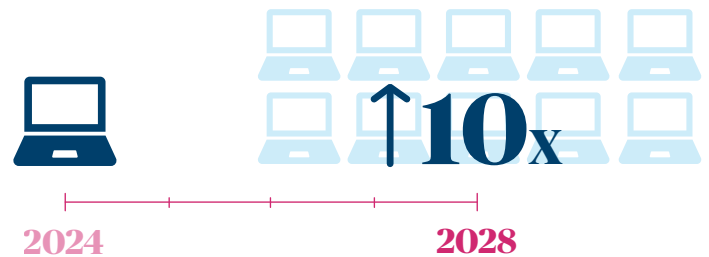


# What's really powering growth in AI



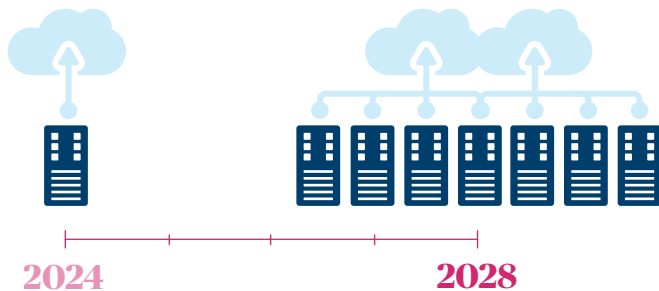
Our equity analysts and technology investment teams have been following AI since its inception to identify key players and areas of growth. At its heart, **opportunity in AI** is driven by growth in the need for **computing power**.

In fact, four years from now, we estimate that computing demand will be nearly **10x the current level**.



It's been estimated that it may take **\$7 trillion in investment to support AI needs**. Here are 4 key contributors:

## 1 More data centers



**Our analysts have calculated that we'll need 7x more data center square footage** over the next four years to house high performance servers, storage systems and networking equipment.

Electrical content in AI data centers can be 3x-5x as high as traditional data centers, and electrical equipment companies are poised to meet the growing need for transformers, battery storage, switchgears, power distribution units and power management software.

## 2 Resources focused on **power and energy**

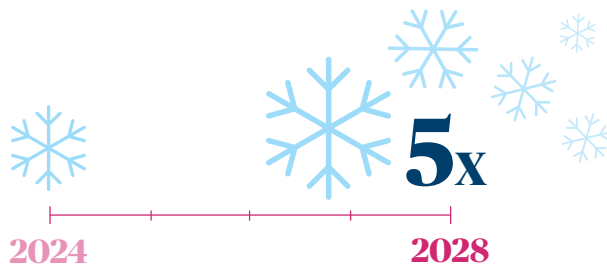
Data centers also have enormous energy requirements. We think **consensus estimates for power needs are underestimated by almost 400%**.

Market consensus:  
**15 GW** 

Our estimate:   
**60 GW**

2028

## 3 Significant demand for **cooling technology**



Data centers also generate a lot of heat, which will drive significant demand for **cooling technology** including air and liquid cooling solutions. We estimate that the liquid cooling market could increase by **5x by 2028 due to AI-driven demand**.

## 4 AI will require **the right people**

There's a global shortage of skilled talent who can help companies effectively implement AI tools. Consultancies that can provide these skills to companies may see significant growth.

**Skills shortages prevent 70% of companies from keeping up with the pace of change.**



Source: Columbia Threadneedle Investments as of 03/31/24.

Capex estimate was posited by Sam Altman, CEO of OpenAI. Computing demand is based on CAGR of PFLOPS, a measure of computing capacity that refers to one quadrillion floating point operations per second. Data center space needs are based on 1000 watts/sq ft. Staffing shortages are derived from the Nash Squared Digital Leadership Report, 2022.

To find out more, call **800.426.3750**  
or visit **[columbiathreadneedle.com](https://columbiathreadneedle.com)**.



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