

Cool intentions

How innovations in heating, ventilation, and air conditioning can curb emissions and boost growth

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Executive summary

In a recent publication from TIME Magazine, a portfolio company held in our Sustainable World Strategy, **Trane Technologies** (NYSE: TT), was listed in the World's Most Sustainable Companies index.¹ Trane Technologies (Trane), a pioneering Heating, Ventilation and Air Conditioning (HVAC) manufacturer, is helping to radically reduce carbon emissions in buildings and construction at a global scale.²

The GIB AM Sustainable World's multi-thematic approach seeks to identify companies addressing critical social and environmental challenges, affecting both our people and planet. We prioritise solution providers whose offerings not only yield positive performance but also create enduring, sustainable impacts. In this thought piece, we explain how our research and thematic analysis has led us to a firm at the heart of sustainable HVAC technology, and the opportunities we envisage for this up-and-coming industry.

- In 2022, the United Nations (UN) estimated that building and construction amount to around 40% of global carbon emissions, 28% of which deriving from the heating, cooling and lighting of buildings.³
- By 2060, the global building floor area (i.e total floor area inside a building) is expected to double, equating to a space the size of New York City being added to the world every month, for 40 years.²
- In 2050, the world's population is anticipated to swell by 2.5 billion, and up to 80% of the global population will reside in cities. Resilient, sustainable infrastructure will be essential in ensuring pollution and emissions are kept at bay, particularly in populous areas.⁴
- Now more than ever, there are growing incentives and legislation on businesses to adopt sustainable, low-carbon technology e.g Biden's Inflation Reduction Act, the EU's Energy Performance of Buildings Directive, etc.⁵



The challenge

Despite hefty emissions, temperature control is essential for economic productivity, disease control, and in an ever-warming climate, survival. In hospitals for instance, maintaining the right temperature can be a matter of life or death, stunting or expediting bacterial or viral growth.⁶ In a similar vein, a comfortable temperature is needed for basic output in working environments, as little as a one-degree increase has found to encourage absenteeism and cause a reduction in work effectiveness.⁷

Yet traditional air conditioning system (ACs) are somewhat problematic. Unlike heating systems, where the byproduct of warming one room or building provides welcome heat to adjacent surroundings, traditional cooling systems often have the inverse effect. In fact, using a refrigerant or AC, often produces warm air that can disperse onto the streets and, in doing so, deter communities (especially those in populous cities), from installing them.⁸

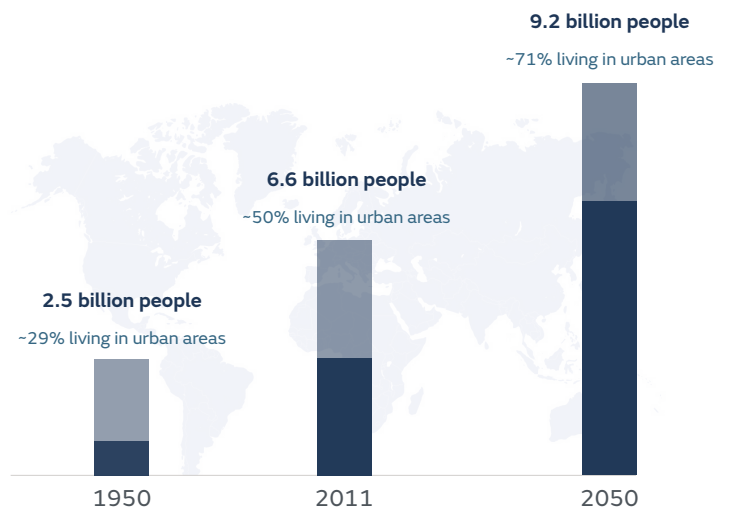


The future needs for heating and cooling

By 2050, the consequences of the climate crisis and increasing rates of urbanisation are anticipated to drastically increase demand for ACs, expanding the current market estimation of 1.6 billion global units to 5.6 billion (a figure that equates to circa 10 ACs sold every second for 30 years).⁹

Creating resilient, sustainable buildings, will not only benefit the planet, keep us in check with emission targets and Sustainable Development Goals, but also pose economic potential through cost-cutting in the

residential and commercial sectors.



Figures sourced from: https://www.researchgate.net/figure/Population-growth-and-rate-of-urbanization_fig1_284920347

The solution

To deliver zero-carbon buildings and infrastructure, adequate investment, cutting-edge technology and green energy will be needed in both the build and operation phases.

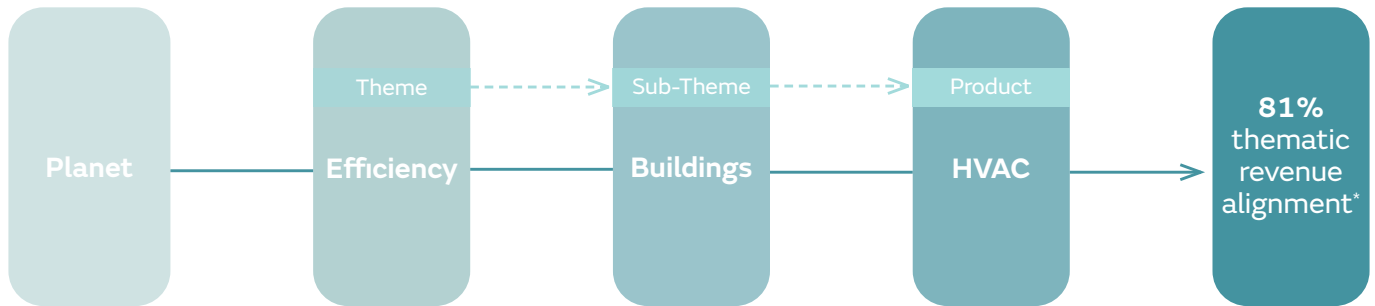
Fully energy-efficient AC systems for example, could reduce cooling-related energy demand by up to c.50%.¹⁰ Improving air infiltration systems, which account for 25%-40% of energy in a home, could drastically decrease carbon footprints.¹¹ By better insulating a property, heat exchange can be reduced, energy saved, and ultimately, emissions avoided.¹²

Devices such as heat pumps, that are used to heat or cool buildings by drawing heat from one area and releasing it into another, could be a significant game-changer. Current estimates suggesting that if 30% of the building sector used heat pumps, global carbon emissions could reduce by 6%.¹³ Smart sensors, which adapt energy usage to conditions inside and outside the house, could also have the mutual benefit of cutting emissions and reducing energy costs for the utility bill payers.¹⁴



The opportunity

In 2021, through our thematic analysis, we identified an investment opportunity in Trane. As a leading HVAC manufacturer developing efficient and sustainable climate solutions for buildings, homes, and transportation at pace, the company aligned with our **Efficiency** theme and **Buildings** sub theme (displayed below).



*GIB AM analysis as at Q4 2023

Trane holds a substantial slice of the HVAC market pie, shared with the likes of Carrier, Lennox, Rheem, and York. These companies collectively shape the industry, and Trane Technologies has been a key player, accounting for a market share of 25-30% in 2023.¹⁵

Their consistent and healthy investment into R&D, acquisition of around 100 new products in 2023, and their ‘first-of-its-kind’ thermal battery storage source for heat pumps were equally unprecedented and appealing.¹⁶ We believe Trane’s thermal battery storage will be a huge growth driver, and while there has been varying government support in Europe and the US for this technology, the long-term market outlook is upbeat.

We predict a multi-year growth and profit runway for Trane, due to:

- **Favourable industry trends:** Increasing legislation and incentives around energy efficiency and carbon emissions have created favourable industry trends for the HVAC sector. In the EU, the Energy Performance of Buildings Directive (EPBD) requires that all new commercial and public buildings constructed after 2020 should be ‘nearly-zero energy buildings’. Further afield, the Biden Administration’s [Inflation Reduction Act](#) provides tax credits and rebates to upgrade residential and commercial HVAC systems across the US.¹⁷
- **Predicted industry growth wave:** The global HVAC sector is headed for a CAGR growth of 6.6% through to 2027 (above the 5% historical trend).¹⁸

Furthermore, as explained above, the sub-industry of heat pumps (a major area of development for Trane) is also expected to grow by 9.5% CAGR over the same period.¹⁹

- **High R&D and premium prices:** Trane’s investment into R&D far supersedes its peers, with 1% of total sales and 20% of new equipment sales reinvested to develop new products.²⁰ Their innovations, whilst premium, are of higher quality than their peers and customers are willing to pay for technology that ultimately saves them costs in the long term.
- **Trane’s direct sales force approach:** Trane employs their own in-house sales team, contrasting with competitors, who tend to use distributors as the middle person. By owning sales and distribution channels, Trane believes that their team, all of whom are qualified engineers, have deeper knowledge of the products and better relationships with the technicians who install and calibrate them. Trane believes that this enables their salesforce to upsell, cross-sell, and create bespoke solutions to fit buyers’ needs, leading to increased sales.
- **Reinvestment:** Trane’s first capital allocation objective is to “Invest for Growth”, followed by maintaining an efficient balance sheet and returning capital to shareholders.²¹ The company’s stable reinvestment rate of 20% ROIC puts it much higher than its peers²² reflected in its 13% net income CAGR (from 2023 to 2026) and 7% asset growth CAGR.²³

Conclusion

As the world battles the climate crisis in conjunction with increasing level of urbanisation, it is crucial that we continue to adapt and, where possible, mitigate impacts on our planet and wellbeing. But a level of adaptation and adoption is also necessary to meet the fast-changing building regulations and remain competitive.

The solution does not need to require strict management of AC of heating systems, which could inadvertently introduce disease and reduce productivity. The solution is quite the contrary. We must prioritise sustainable and resilient innovations, as in doing so, we can grant access to fresh food, habitable living conditions, while simultaneously cutting operating costs for building owners. It is that very same resiliency, that we believe will deliver long-term results.

In line with our [Sustainable World Strategy](#) investment approach that seeks to uncover solution providers whose offerings not only yield positive performance but also create enduring, sustainable impacts, we believe that Trane's mission and resilience in an increasingly vital market renders the company as a compelling long term investment opportunity.



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