REFINITIV STREETEVENTS

EDITED TRANSCRIPT

TT.N - Trane Technologies PLC Investor Briefing

EVENT DATE/TIME: DECEMBER 14, 2020 / 3:00PM GMT

CORPORATE PARTICIPANTS

Christopher J. Kuehn *Trane Technologies plc - Senior VP & CFO*

David S. Regnery *Trane Technologies plc - President & COO*

Michael W. Lamach *Trane Technologies plc - Chairman & CEO*

Ray Pittard *Trane Technologies plc - Former President of Transport Solutions - North America, Europe, Middle East & Africa*

Zachary A. Nagle *Trane Technologies plc - VP of IR*

CONFERENCE CALL PARTICIPANTS

Andrew Alec Kaplowitz *Citigroup Inc., Research Division - MD and U.S. Industrial Sector Head*

Charles Stephen Tusa *JPMorgan Chase & Co, Research Division - MD*

Christopher M. Dankert *Longbow Research LLC - Research Analyst*

Deane Michael Dray *RBC Capital Markets, Research Division - MD of Multi-Industry & Electrical Equipment & Analyst*

Gautam J. Khanna *Cowen and Company, LLC, Research Division - MD & Senior Analyst*

Jeffrey Todd Sprague *Vertical Research Partners, LLC - Founder & Managing Partner*

Joel Gifford Tiss *BMO Capital Markets Equity Research - MD & Senior Research Analyst*

John Fred Walsh *Crédit Suisse AG, Research Division - Director*

Joseph Alfred Ritchie *Goldman Sachs Group, Inc., Research Division - VP & Lead Multi-Industry Analyst*

Julian C.H. Mitchell *Barclays Bank PLC, Research Division - Research Analyst*

Markus M.H. Mittermaier *UBS Investment Bank, Research Division - Head & US Equity Research Analyst of Americas Electrical Equipment and Multi Industry Research*

Nigel Edward Coe *Wolfe Research, LLC - MD & Senior Research Analyst*

Scott Reed Davis *Melius Research LLC - Founding Partner, Chairman, CEO & Research Analyst of Multi-Industry Research*

Stephen Edward Volkmann *Jefferies LLC, Research Division - Equity Analyst*

PRESENTATION

Operator

Good morning, and welcome to the 2020 Trane Technologies Investor Briefing. My name is Mariama, and I will be your operator for the call. This call will begin in a few moments with the speaker remarks followed by a 45-minute Q&A session. (Operator Instructions) I will now turn the call over to Zach Nagle, Vice President of Investor Relations.

Zachary A. Nagle - *Trane Technologies plc - VP of IR*

Good morning, and thanks, everyone, for joining us for Trane Technologies 2020 Investor Briefing. This call is being webcast on our website at tranetechnologies.com where you'll find the accompanying presentation. We are also recording and archiving this call on our website.

Please go to Slide 2. Statements made in today's call that are not historical facts are considered forward-looking statements and are made pursuant to the safe harbor provisions of federal securities law. Please see our SEC filings for a description of some of the factors that may cause our actual results to differ materially from anticipated results. The presentation also includes non-GAAP measures, which are defined in the appendix of the presentation.

Please go to Slide 3. During this morning's event, we'll hear from Mike Lamach, Chairman and CEO; Chris Kuehn, Senior Vice President and CFO; Dave Regnery, President and COO; and Ray Pittard, our Transformation Office Leader.

With that, please go to Slide 4, and I'll turn the call over to Mike. Mike?

Michael W. Lamach - *Trane Technologies plc - Chairman & CEO*

Thanks, Zac, and thanks, everyone, for joining us on today's event. You might recall at the beginning of the year, we targeted an Investor Day for 2020 that would have been longer and more traditional. But as the year has progressed, COVID-19 has been unrelenting and presenting the world with unprecedented challenges every step of the way. This volatility and lack of certainty is limiting our ability to provide long-term top line and, therefore, bottom line targets with the level of rigor that we and investors would expect.

Rather than hold off on an Investor Day until we have that level of visibility, we wanted to shift the format a bit to a shorter, very focused investor briefing, spending a couple of hours on the areas that are directly in our control. These are the self-help actions we're taking today to make us a stronger company in any environment. We're excited about the briefing today because we have a lot to share about how we're transforming and reimagining Trane Technologies.

After announcing the separation of our Industrial businesses, we knew we had a unique and timely opportunity to reimagine what Trane Technologies could be as a pure-play climate-focused innovator with an IPO start-up mentality. We established our transformation office led by our senior executive, Ray Pittard, who most recently ran our TK business and who is on the call with us today. We've shared some of the results, the stranded costs and other cost savings projects that are underway throughout the year. Today, we'll cover these and the other programs we've been working on to fuel innovation and growth and expand margins in more detail. I'll start with some overarching themes and key takeaways for the day. And then Chris, Dave and Ray will do a deeper dive.

Let's turn to Slide 5 and the key messages I'd like you to take away from today's briefing. At a high level, we're focusing on 3 main elements that will fuel our success: sustainable innovation, execution excellence and structural transformation. The first thing you'll hear today is how customer-focused innovation is fueling our growth. Relentless high levels of business reinvestment and innovation and operational excellence are the essential engines that enable us to outgrow our end markets year after year and extend our leading market positions versus our competitors. We will continue to feed this engine which is at the core of our business operating system.

The second message is that operational excellence, combined with our high-performance culture, reinforces and enables us to continuously improve our processes, driving lean principles into everything we do, leaner, faster, better, never sitting still and always improving.

And third, structural transformation further unlocks our potential by solidifying our ability to deliver strong leverage and continuous margin improvement through a fundamentally improved cost structure for the company.

Ultimately, our reimagining will drive $300 million in savings to reinvest in 2 key areas: First, heavy reinvestment and innovation in our business operating system to fuel continued market outgrowth. We have a strong track record of growing faster than underlying market conditions over the past several years. Additional reinvestments funded by transformation savings serve to further strengthen our ability to outgrow our end markets going forward.

Second, fundamentally improving the long-term cost profile for the company, enabling us to improve incremental margins sustainably to 25% over the long term. For those of you who know us well, this formula for success isn't new. It's how we've driven differentiated shareholder returns over the years combined with a strong free cash flow performance and balanced deployment of 100% of excess cash. It's our framework for shareholder value creation.

Before we continue on through the balance of the discussion and into the Q&A, I think it's important to be really clear about what we're hoping to achieve today. At the end of the day, rather than the ability to give you discrete margin percentages and growth rates, which is not something that we can really do today in this environment, we want you to walk away with confidence that we'll outgrow the economy at large, outgrow our end markets and confidence that we will deliver on 25% operating leverage over the mid and long term.

Turning now to Slide 6. I'm going to focus my comments in 3 key areas today, including the advantage of the Trane Technologies as a pure play and our priorities to unlock our full potential through transformation.

Please turn to Slide 7. Let's start with our unique position. Trane Technologies reimagined has the essence and energy of a startup but with the benefits and credibility of a market leader with a proven track record. I look back at the energy and optimism of the team during our day 1 celebration for Trane Technologies. We took the position that we were the NewCo, we were the IPO, that we were starting up a brand-new company. And that empowered the team to purposefully decide on the strategy that we've defined Trane Technologies, everything from our organizational model and investment framework to our continued commitment towards diversity and inclusion and climate-focused innovation for our customers.

Unlike a traditional start-up, we were able to build our new company on a strong foundation based on years of execution and deep customer relationships. The combination is powerful and our people see the opportunities ahead and are eager to seize them, making bottoms-up transformation a reality. In other words, the energy and optimism that we started with at the launch of Trane Technologies is even stronger today.

Please turn to Slide 8. You may ask, why does being a pure-play matter? We've highlighted 5 reasons why being pure play matters, and I'll focus on 2. First, we'll continue relentless reinvestments to fuel market-leading innovation. Our purpose-driven strategy is 100% focused on driving sustainability. That means we're intent on bending the curve on climate change. Episodic investment, where a company may decide to increase investments for a year or 2 or 3 to drive growth, then decide to slow the rate of investments in favor of improved leverage and margins just won't be enough. We are committed to making a difference consistently, relentlessly over the long term. This unrelenting focus on innovation has been fundamental to our market outgrowth in recent years and is the path forward to how we maintain leading market outgrowth over the long term.

Second, we've developed, refined and strived to optimize our business operating system over the past 10 years since we acquired the Trane HVAC business in 2008. It's a journey of continuous improvement based on lean principles, and it drives operational excellence into everything we do on a daily basis. We invest heavily in our business operating system year in and year out because we're always seeking ways to take our business operating system to the next level to further improve our ability to do 2 crucial things simultaneously: continue to improve our cost structure and margin profile and increase investments in innovation to further cement our ability to outgrow our end markets consistently.

One of the strengths of the model is this exact framework with a choice to invest and a choice to cut costs to improve margins are not binary choices and far from mutually exclusive. To drive success for shareholders over a long period of time, you need to do both of these things well and consistently.

Our business model is our secret sauce. It's highly evolved over 10 years, unique to Trane Technologies and embedded in our culture, making it impossible to replicate and formidable as a competitive differentiator in our industry.

And as we'll discuss in more detail in the presentation, the reimagining and transformation of the company is a continued evolution of the maturation of our business operating system. It enables a step function improvement in our ability to continue to deliver innovation and growth and margin improvement simultaneously over the long term for shareholders.

Turning to Slide 9. We're a diversified global climate leader with strong and growing aftermarket mix. Here you see the breakdown of our revenues by region showing the key revenue streams in each region. What's really important to note is that each of our segments has a mix of 30% or greater aftermarket, which makes our business more resilient in a downturn. In particular, Commercial HVAC aftermarket mix has grown approximately 10 points since the last downturn, reaching approximately 45% parts and service globally and nearly 50% parts and service in North America. We see opportunities for aftermarket mix in similar businesses in other regions to reach North American levels, and we see continued opportunities to grow North America aftermarket mix in the future with digital connectedness, remote monitoring and artificial intelligence just being a few of the opportunities I'd highlight.

Our strong aftermarket mix is a key advantage, making our businesses more resilient in a downturn, and we're clearly seeing the benefits through the COVID-19 pandemic in 2020 with stronger-than-anticipated market outgrowth and better than gross margin decrementals.

Now let's turn to the strengths we're leveraging as a pure-play climate innovator. Turning to Slide 11, we'll talk about 2 key areas that differentiate Trane Technologies. The first is that we are the sustainability leader. We started this quest years ago, is core to our business strategy long before sustainable investing was in vogue. Our Gigaton Challenge and the entirety of our 2030 sustainability goals are a testament to our conviction and leadership in driving industry change.

Turning to Slide 12. Global megatrends are a powerful tailwind for our business. The 21st century brings significant global challenges that all businesses, nation states and humans will face. The driving factor behind these challenges is a rapidly increasing rate of additional greenhouse gases emitted from human economic activity. This rate of additional greenhouse gas emissions is already outpacing the planet's ability to absorb and remove them to maintain a comfortable and stable climate for all life.

Trane Technologies has an opportunity to dramatically reduce 2 major sources of greenhouse gas emissions: first, on the left of the slide, we can reduce emissions related to heating and cooling of residential and commercial buildings; and second, in the middle, we can continue to improve the global cold chain to reduce emissions related to food that decomposes before ever reaching market and safely deliver medicines and vaccines to save lives. The emissions from these 2 sources alone account for approximately 25% of global annual greenhouse gas emissions. Trane Technologies provides the suite of solutions to greatly reduce these emission sources while still surpassing our customers' expectations for best-in-class total cost of ownership, service and quality.

Let's turn to how we're doing just that on Slide 13. We are uniquely positioned at the intersection of rapidly rising global emissions and the delivery of innovative solutions to dramatically reduce these emissions. In the chart on the left, you can see while emissions from HVAC and food loss accounts for 25% of greenhouse gas emissions today, that number is expected to climb to 35% by 2030. This is indeed a global crisis, and we intend to bend the curve on global warming, as you can see under the actions we are taking through accelerating the use of clean technologies, increasing the efficiency of our systems and transitioning out of high global warming potential refrigerants.

Our intent with our market leadership position is to remove hydrofluorocarbons from systems. We have set a very aggressive goal, our Gigaton Challenge, to save 1 billion metric tons of CO_2 for our customers by 2030, which is equivalent to 2% of the world's annual emissions. We're challenging like-minded companies to do the same and are encouraged to see others joining the movement. By setting bold goals and challenging what's possible for a sustainable world, Trane Technologies can help lead the world to bend the curve on greenhouse gas emissions. We believe one company can change an industry and one industry can change the world, and Trane Technologies is that company. We're proud to take the leadership role and to challenge what's possible for a more sustainable world.

Please turn to Slide 14. Bending the curve on climate change is vital, but the benefits of our purpose-driven strategy are wide-ranging. First, our purpose powers our people and our culture. The research shows that people who believe in their company's purpose are 20% to 30% more likely to stay. And for some of the younger generations, that number is even higher. We see that firsthand and we've enjoyed best-in-class employee retention rates for over a decade. Even through the challenges of 2020, our overall employee engagement measured by our annual survey was again top quartile of all companies and actually improved from 2019. Particularly, pride in our company, up 2 points versus prior year; and excitement for the future, up 4 points versus the prior year. Our team has great pride in seeing the Trane Technologies purpose come to life, and that translates into empowerment, innovation and strong performance.

Second, the financial benefits are clear, and I referenced many of them earlier when talking about the benefits of being a pure-play climate-focused innovator. Our business model is simpler. Our investments more targeted, and our execution is faster and more agile to meet the needs of our customers. The end result is more value across the board for customers, employees and for shareholders.

As we execute our strategy, our performance has been widely recognized as highlighted on Slide 15. We're proud of our track record over the past several years. And this year, as we activate our more focused strategy as a climate innovator, recently, we were named the prestigious Dow Jones Sustainability North America Index for the tenth consecutive year and the first under the Trane Technologies name. We continue to learn from our external advisers, partners and rating agencies to take action to enhance our ESG performance.

Turning to Slide 16. One key element of our ESG performance is our work to enhance our workplace diversity and create an inclusive culture. We recently updated our diversity and inclusion strategy to align with our purpose and our 2030 sustainability commitments. In addition to our Gigaton Challenge and our commitment to be net carbon 0 by 2030, our goals also include achieving gender parity and leadership and to drive diversity and inclusion with a workforce that is representative of the communities in which we live and work. I encourage investors to look at our appendix for a summary of all of our 2030 sustainability commitments.

In addition, we are a founding member of OneTen, a corporate-led coalition to hire 1 million Black Americans over 10 years while improving ongoing retention, development and advancement. To support these goals, we are working across the full value chain, where and how we recruit talent, how we develop and promote from within and how we hold our leaders accountable in creating opportunity for all. We are proud to engage alongside other leading companies in many important coalitions that share the same goals.

And now I'd like to turn the call over to Chris Kuehn to discuss the second major strength we're leveraging. Chris?

Christopher J. Kuehn - *Trane Technologies plc - Senior VP & CFO*

Thanks, Mike. Please turn to Slide 17. In addition to our sustainability leadership, a second key differentiator for Trane Technologies is our culture of performance excellence, which has delivered top-quartile financial performance and differentiated returns for shareholders.

Turning to Slide 18. To illustrate my point, let's revisit the Investor Day we held in May of 2017 where we laid out bold 3-year financial targets. Evaluating our performance through 2019, we delivered top quartile performance and significantly exceeded our top line, bottom line and cash flow targets, with Climate segment organic revenue growth of 8%, nearly doubling our 4.5% target; and adjusted earnings per share growth of 19%, exceeding the high end of our EPS target range by almost 50%. We also delivered free cash flow of 106% of adjusted net earnings over the period; and cash flow ROIC exceeded our target, reaching 27% in 2019.

Please turn to Slide 19. Let's briefly take a closer look at the underlying performance on our 4 key metrics. Revenue growth was clearly a standout. Consistent with our strategy, we significantly outgrew our end markets and peers over the period, reflecting relentless innovation from unyielding high levels of business reinvestment for over the past decade. In addition to strong revenue and EPS growth and free cash flow conversion, we also had solid EBITDA margin expansion over the past 2 years of 90 basis points.

Margin expansion was a significant opportunity for us at the last Investor Day in 2017, and it remains so today. As Mike discussed at the outset, our primary objective of the reimagining of Trane Technologies and our business transformation is to drive stronger leverage and improving margins consistently over the long term.

With strong financial performance and powerful free cash flow, let's take a look at how we've deployed the cash. Turning to Slide 20. You can see we have a strong track record of maintaining a disciplined and balanced capital allocation strategy that deploys 100% of excess cash over time, which is aligned with our Board and our long-term investors. Over this period, we deployed $7.7 billion of capital to 4 main priorities after maximizing reinvestment dollars into our core business.

One area that I'd like to highlight that we're really excited about and I think maybe underappreciated in the marketplace is M&A and the portfolio management of 22 acquisitions totaling $2 billion that we've made over the period. We have developed an excellent track record integrating acquisitions into our portfolio, company culture and back office, led by capable management in our business units and corporate teams, including technology acquisitions where we're taking leading technology and seamlessly integrating it into our product portfolio and world-class sales channels across the globe.

As part of our business operating system, we performed look-backs on acquisitions at the 12-, 24- and 36-month mark post-acquisition. Let me provide 2 examples from recent look-backs. We completed the acquisitions of Arctic Chiller and ICS Cool Energy in the period. The first added modular applied chiller solutions to the company, and the second expanded our HVAC rental services in Europe. These 2 acquisitions are performing very well and are delivering, on average, cash flow ROIC in excess of 40%.

Additionally, I'd highlight, we've continued to invest heavily in share repurchases with $2.9 billion invested over the period. Share repurchases have remained a good use of cash as the shares have continued to trade below our calculated intrinsic value. Let me bring this together to explain how our strategy and priorities are being leveraged to maximize the potential of Trane Technologies.

Turning to Slide 22, you can see we're focused on 4 key priorities to continue delivering differentiated shareholder returns. We're excited to focus on a couple of key areas today, both of which are strengthened by our business transformation, which helps unlock Trane Technologies' full potential over the long term. The first is through further increasing business reinvestments in sustainable innovation, which bolsters our ability to continue to grow faster than our end markets as we've done by a significant margin in recent years.

The second is how we leverage our business operating system and operational excellence, combined with our business transformation, fundamentally lowers our cost structure to continue to expand margins. We've made good progress improving incremental margins over the past 3 years, and transformation enables us to kick it up a notch sustainably.

Turning to Slide 23. We're fundamentally transforming our business as a pure-play climate-focused innovator and driving approximately $300 million in cost savings over the next 2 years in the process. We will invest these cost savings to further strengthen our high-performance flywheel, which has a reinforcing and compounding effect over time. There are 4 major elements: one, invest a significant portion of the savings into unrelenting business reinvestments in innovation and leading technology. This fuels the second element, sustained growth above our end markets.

Third, we will invest another significant portion of the savings into an improved cost structure for our pure-play business, which drives the fourth element, improved and sustainable incremental margins at or above 25% over the mid to long term. When combined, this creates a compounding effect of high-quality earnings growth and free cash flow year after year. By reimagining Trane Technologies and fundamentally improving our business and our cost structure, we don't have to choose between increasing business reinvestments and innovation to fuel growth or delivering cost savings to expand margins. Our business transformation funds both.

Net, through transformation, we believe we can continue to consistently deliver above-market growth while delivering 25% leverage consistently over the long term. On a historical basis, as I highlighted earlier, we delivered very strong financial performance. We clearly outgrew underlying economic conditions in our end markets with an 8% revenue CAGR over the period. Leverage was solid and improved over the period, reaching 23% in 2019 and helping to deliver 19% adjusted EPS growth, with 106% free cash flow to earnings conversion and 90 basis points of EBITDA expansion.

However, improving leverage to 25% from the 16% average over the period would have driven even stronger margin expansion and greater earnings power. For reference, margins would have expanded an additional 170 basis points. Pre-RMT Climate segment margins would have expanded to 16.7% by 2019, which compares favorably to the 16.5% target from our 2017 Investor Day. Enterprise EBITDA margins would have expanded to 16.9% as compared to the 15.2% achieved in 2019. Clearly, improving incremental margins to the 25% level is powerful, and we're confident we can deliver this target with the framework we've outlined today.

Now I'd like to turn the call over to Dave Regnery, who will talk in more detail about our continued relentless investments and superior innovation to drive both growth and margin expansion. Dave?

David S. Regnery - *Trane Technologies plc - President & COO*

Thanks, Chris, and thank you to everyone for joining us this morning. I would like to dive a bit deeper into driving growth and margin expansion through innovation and performance excellence.

Please turn to Slide 25. I'll start with our track record, then Ray and I will discuss several key priorities and Chris will come back on our value creation framework.

Please turn to Slide #26. To quickly recap, you'll see here that over the past 3 years, we have delivered margin expansion of 90 basis points despite significant headwinds from tariffs and material inflation in 2017 and into 2018. Our people and the culture we create is what's making us different.

We believe we can get better every day. We continue to find innovative ways to reduce waste in our businesses and creative approaches to make things better for our customers, applying lean principles in our proven operating system.

Please turn to Slide 27. Let me share a few thoughts on how we do that through our business operating system, the backbone of all that we do. We start with our customer to understand and anticipate their needs and how value can be created. We empower our employees. They're closest to the action. They know which problems to solve and how to solve them. We put a sustainable mindset on all we do: design, process, operations, taking action today for a better tomorrow. Together, this leads to profitable growth through margin expansion, share gain and contribution to a better, more sustainable world.

Our operating system is the underpinning of our strategy, a continuous improvement mentality that propels our businesses to perform at a high level today and into the future.

Let's now turn to the priorities that are driving growth and margin expansion. Please turn to Slide 29. There are 3 key areas we focus on to drive continued improvement. I'm going to talk about the first 2 and Ray will cover the third.

Moving to Slide #30. Turning now to the first area, innovation driven by megatrends. You've heard us speak about the megatrends on the left of the slide. Climate change is happening. The world is getting warmer. Today, 55% of the world's population lives in urban areas. By 2050, that number is projected to increase by 25%, increasing energy demand and emissions. Changing demographics are driving increased demand for food, water and energy, putting pressure on our natural resources.

And we're seeing 2 accelerating megatrends that are particularly relevant for us. At Trane Technologies, we have been experts in helping our customers with indoor air quality for decades. Now with COVID-19, this has become top of mind for the world. We'll talk more about this a bit later. The second accelerating megatrend is digital connectedness. Utilizing our sophisticated modeling capability, coupled with our AI tools, we were able to make buildings smarter from inception. We then monitor the building over its lifetime as compared to its digital twin, allowing for adjustments back to the original optimized specification.

Additionally, we often remotely fix or adjust building systems versus sending technicians in person. In short, when buildings are connected, we ensure they are always operating at the desired state, eliminating energy waste. With data, we are capturing from over 21,000 connected buildings, we are able to apply our AI tools to make buildings operate even smarter. We understand how buildings are used, occupants, patterns and flows, the impact of weather patterns and other trends, which gives us the ability to make real-time changes to save energy or improve the health and comfort of the building.

Let me give you an example. We recently partnered with a large data center customer. We thought this data center had a very efficient chiller plant, one of the most efficient in the world, in fact. However, when we applied our artificial intelligence tools to analyze multivariable data sets and optimize the software algorithms that control the system, we were still able to increase efficiency by 30%. This gives you a sense of how Trane Technologies is accelerating innovative sustainability solutions.

The megatrends I've highlighted are telling us that urgency is high and the time to act is now. We are seeing an accelerated need for innovative climate solutions to support the health of people and our planet.

Please go to Slide 31. So what is our innovation pipeline? I can remember back in 2009 after Trane was acquired by Ingersoll Rand, and we had less than 20 new product innovations in the pipeline. Less than 20, and we were concerned about our ability to successfully execute all of them. Today, our innovation pipeline is full and robust and has been a source of growth for several years. We currently have more than 200 products in the pipeline, and we're not letting up. At the bottom of the slide, we highlight just a sliver of our product pipeline, ranging from electrification of both heating and transportation, near-0 global warming potential refrigerant systems, products that help our customers improve their indoor air quality and artificial intelligence-enabled solutions to reduce building energy intensity and emissions and improved building health like the data center I explained earlier.

Through our business operating system, we fundamentally transformed how we innovate at Trane Technologies, which has dramatically increased the volume, quality and the velocity of projects we're able to launch. As an example, in our Thermo King business in EMEA, we will launch 18 new products in the next 18 months. That's a new product every month.

Moving now to our second focused area, delivering superior commercialization of our products and services. Please turn to Slide #33. Success is not just about developing a new product or service. How we commercialize the product or service is another important element that differentiates Trane Technologies in the market. Our highly trained and expert direct sales force allows us to not only understand customers' needs but also creates a cohesive consultive relationship between Trane Technologies and our end users.

Our customers rely on our expertise. And as a streamlined climate innovator, we will continue to focus our investments in areas that allow Trane Technologies to accelerate our rate of innovation for customers. We have some of the best minds in the industry, challenging what is possible and developing what was thought of as impossible just a short time ago. Coupled with our leading commercialization expertise, we deliver a superior growth profile versus competitors and a lower total cost of ownership for our customers.

Let me share with you a few examples. Turning to Slide #34. The first is our next-generation trailer technology, the Advancer. Developed by our Thermo King team in EMEA, the Advancer is the most sustainable trailer refrigeration unit on the market and has the lowest total cost of ownership. Compared to any other trailer unit, the Advancer delivers 30% better fuel consumption, reaches its target temperature 40% faster, reduces maintenance costs by 30%, and my favorite, the product takes 60% less energy to manufacture.

When we were developing the Advancer, we deployed engineering prototypes to our customers for testing purposes. And they performed so well that when it was time for them to be returned, remember, these were engineering prototypes for testing purposes that we expect it to get back. Our customers would choose to get them back. They wanted to buy them. I told them, "No, no, no. We need those units back. I'll show you new units." The product officially launched in July, sales activity is strong and margins are higher versus our current trailer product. We are very encouraged to date.

Please go to Slide #35. Turning to our next case study. Our European commercial HVAC team recently launched the Sintesis balance 4-pipe chiller. This fully electric unit combines both heating and cooling, eliminating the need for a separate fossil fuel-powered boiler. You could see the opportunities on the left. I'll touch on 2.

First, we see the size of the electrification of the applied heating market in Europe to be approximately $1 billion. Through strategic M&A and our own innovation, we are penetrating this previously untapped adjacent market. This market is just one example of adjacent markets that are opening up to Trane Technologies. Other adjacencies include our ability to replace ammonia-based systems used in industrial applications, a market we estimate to be greater than $1 billion. Our chiller platform provides a safe, sustainable solution for these industrial applications with a strong service tail. A third adjacency is our ability to provide indoor air quality for a variety of buildings. I'll talk more about that in our last case study.

Second, the Sintesis is accretive to margins, and we see a good opportunity with service across all seasons. And why is this important? The benefits to our customers and to the world are huge. The Sintesis is 350% more efficient than the boiler it replaces. And the unit recovers energy without generating its own carbon emissions. When powered by electricity from renewable sources, the Sintesis Balance is a 0 emissions solutions. It is innovations like this that are making our Gigaton Challenge a reality.

Please turn to Slide 36. Now for our final case study, indoor air quality. This topic is generating tremendous interest around the globe. We have decades of expertise in this area, and we are partnering with our customers on comprehensive indoor air quality assessments, which are fact-based, data-driven analysis. These are not check-the-box exercises. They can take hundreds of hours to prepare. We take a holistic approach, looking at the entire system, not just a component in the system but the entire system.

We start by understanding the current mission and purpose of the building, recognizing that, over time, the mission and purpose can change as tenants and occupants change. We ensure the building equipment is operating as designed. We use sophisticated proprietary modeling tools to evaluate and match filter density to fresh air exchanges. With these tools, we create a customized solution with improvements to filter density and fresh air exchanges that will operate efficiently within the building system to help our customers operate to a higher standard. And we install proper sensing technology. Then we work with our customer to provide a road map to a healthier space.

Day 1, let's make the building as safe as possible today. Day 2, what structural changes need to be made long term to improve the building health or reduce the energy intensity of the building, which could include more sophisticated air treatment processes like ducted photocatalytic oxidation solutions or interim solutions like dry hydrogen peroxide to reduce pathogens in the air and on surfaces. Our services give our customers assurance through proactive assessments and mitigation measures that can improve the health and safety of their buildings. These measures also help to improve the confidence of the building occupants. And coupled with our energy services and connected building expertise, we have the ability to help our customers manage the entire indoor environment as well as the building's impact on the outdoor environment.

We have come a long way from when I remember less than 20 projects in the innovation pipeline to Trane Technologies today with more than 200. We are leading the industry with innovation, superior commercialization and a deliberate focus on growth and margin expansion. I expect more in the future.

I would now like to introduce Ray Pittard, our transformation leader, to walk us through how we have re-blueprinted our company. Ray?

Ray Pittard - *Trane Technologies plc - Former President of Transport Solutions - North America, Europe, Middle East & Africa*

Thanks, Dave. Let's turn now to how we're transforming our operational platform to assure even stronger execution and performance for Trane Technologies for the future.

Moving to Slide 38. Let me begin by outlining the framework of this transformational execution platform. We began by making thousands of strategic choices, ranging from choosing to invest in centers of excellence around refrigerants and compression to modeling and simulation tools to culture builders around diversity, inclusion and engagement. Through these strategic choices, we created a transformed platform with 4 key elements that enhance our long-term execution capabilities for Trane Technologies.

They include designing an organization that's fit for purpose, building budgets that align to that organization, transforming our IT capabilities to orient to our future needs and elevating our supply chain capabilities to the next level. The result of this is a company that can execute value creation for customers, employees and shareholders at an even stronger level than today. I'm now going to cover each of these 4 key focus areas.

Turning now to our first key focus area on Slide #39. Let's start with our new fit-for-purpose organizational model. What you see here on the left is a summary of the actions we've taken with the outcomes on the right. A critical part of our organizational transformation has been to simplify structures, move resources closer towards our customers and optimize our new pure-play climate company. By designing our new organization with these aspects in mind, we've been able to streamline and flatten our structure which enables speed, creates more empowerment and reduces our G&A cost to achieve benchmark-level performance.

As a part of this transformed organization, we moved responsibilities to the business units, resulting in less overhead, better alignment and accountability and faster execution. Let me give you an example. We moved our collections team from corporate and into the businesses. Prior to this realignment, our collections team still have been making improving progress on our disputes resolutions as it relates to accounts receivable. Afterwards though, making this realignment, we've seen a 36% reduction in our disputes, achieving our lowest level in years. And we've consistently maintained that performance over the past 6 months in a really tough collections environment. Each of these realignments were considered with our financial control environment in mind.

Designing fit-for-purpose roles and functions has improved the clarity and accountability, which strengthens our control environment. With this new structure in mind, let's now look at the approach we took towards building our new budget blueprints and the benefits on the next slide.

Let's turn to our second key focus area on Slide #40. We leveraged a strategic choice process to build budgets that align directly to our pure-play purpose and priorities. This work started with fare benchmarking to assure we have best-in-class targets for effectiveness and efficiency by function. Then we focused on the work in that function to challenge what was needed using a strategic choice framework and a 0-based starting point all in alignment with our pure-play purpose. As we went through thousands of choices to decide what we want to invest in, we built demand models that inform specific line item budgets. All in all, we reviewed over 70 functional areas, hundreds of cost accounts and literally spent thousands of hours getting it right.

The outcome was a blueprint for our organizational model and budgets that created a step function improvement in our effectiveness, efficiency and aligns to our climate-focused strategy. Simply stated, we didn't just take a prior budget and cut it by a target percentage. For every single line item in over 70 functions, we started at 0 and then only added in the cost if there was a clear benefit to our customers and our strategy, as I would think of it, a true clean sheet approach. So you might ask how has this impacted our cost structure.

Moving to Slide #41. I want to bring together the first 2 key focus areas and remind you of the impact of our actions. We've been test driving our transform organizational model for a couple of quarters, and the results are really bearing fruit. We've exceeded our original cost reduction expectations, resulting in savings of $100 million in 2020 and $140 million in 2021, as shared on our recent earnings calls. Beyond the immediate benefits, there are some really interesting capability enhancements that give us even more value creation for the future.

Turning to our third key focus area on Slide 42. Let's look at our repositioning of IT towards growth and additional margin expansion. By reimagining the role of IT and moving the resources to the businesses, we're able to streamline decision-making and focus on systems to help our employees create an improved customer experience. For example, we've worked through our IT portfolio to reduce overlaps in aging applications by 40%. A 40% reduction is massive. This rationalization has helped us reinvest back into front-end systems to better help our teams work with our customers and reduce the risk of obsolescence.

Finally, through the strategic choice work I mentioned earlier, we are adjusting our delivery model for core and noncore work to be fully optimized for our company, resulting in additional cost savings and better performance.

Now let's talk about our fourth key focus area. Please turn to Slide 42. A great place to continue to build world-class capability is around our supply chain. By lifting our skills as a company in this area, we can deliver increasing productivity to fund growth investments and expand our EBITDA. So you might ask how are we improving from a solid starting point. We've benchmarked best-in-class capabilities and made strategic choices to invest in our team's capability, the latest analytic tools and improved cross-functional processes to further elevate our performance.

Across nearly 80 categories of spend, everything from motors and metal fabrication to IT hardware, we've been able to deliver stronger levels of productivity. A good example is the use of should-cost analytic tools and processes that give our category a good visibility to cost improvement opportunities. For instance, one category team used these new methods to focus on a piece of our IT hardware spend and reduce that cost by nearly 20%. This initiative enables expanded productivity pipelines and better value capture by our teams. We're realizing this already.

Another lever is for us to decrease our cycle time from idea to value capture to increase project throughput. Our teams have been using lean tools and methods to dramatically reduce cycle time over 25% this year alone, which, of course, results in increased productivity. Together, better capability to extract value and faster speed gives us a bigger productivity engine to drive cost savings and further investment for the future.

In summary, on Slide 44, our repositioning of IT and supply chain excellence initiatives are expected to drive an additional $160 million in savings over the next 3 years, with supply chain excellence being the larger contributor to these savings. Now let me turn it over to Chris to discuss how our business transformation provides fuel to drive our value creation framework. Chris?

Christopher J. Kuehn - *Trane Technologies plc - Senior VP & CFO*

Thanks, Ray. Let me summarize our total transformation savings and share with you how we are thinking about our shareholder value creation framework over the next several years.

Turning to Slide 46. The additional transformation savings Ray outlined, including both repositioned IT and supply chain excellence savings, are adding $160 million to the previously communicated $140 million of fixed cost savings, bringing our gross transformation cost savings to $300 million by 2023.

Turning to Slide 47. Bringing everything together, we've laid out our model for long-term value creation. Through the reimagining and transformation of Trane Technologies, we're delivering $300 million in savings that we will reinvest to strengthen our ability to drive continued growth above underlying economic conditions in our end markets, with sustainable 25% leverage, resulting in business outperformance over the long term.

Turning to Slide 48. Looking forward, the key things I drive home based on today's transformation discussion are: first, we intend to maintain very high levels of business reinvestment in innovation and technology to further extend our product and market leadership. Transformation savings bolster our ability to continue our relentless investments in products and services and to fully invest in value-accretive M&A.

Second, we expect to continue to deliver free cash flow equal to or greater than 100% of adjusted earnings. This is world-class performance and demonstrates our commitment to converting earnings into real cash for investors.

And third, we expect to deploy 100% of excess cash over time in a thoughtful and balanced way.

Now I'd like to turn the call back over to Mike for closing thoughts before we take your questions. Mike?

Michael W. Lamach - *Trane Technologies plc - Chairman & CEO*

Thank you, Chris, and please go to Slide 49. In summary, the reimagining and transformation of Trane Technologies is well underway and is strengthening our value creation framework to outperform consistently over time. By transforming the company, as we've outlined in detail today, we're driving $300 million in cost savings and deploying savings into innovation or continued to market outgrowth into a sustainable incremental margin profile of 25% over the long term.

We've been executing our business operating system and our value creation framework consistently for years now, continuously improving and raising the bar for performance. The reimagining and transformation of Trane Technologies into a pure-play is an evolution that bolsters our business operating system and gives us a wider field of play and clearer line of sight to our high performance objectives.

I spoke earlier about the strength of our business model, and I think it bears repeating here as we've summarized in the investor briefing. Reinvesting in the business and executing to achieve the right cost structure are not binary choices. It's a system of things that need to work in concert over the long run to create lasting shareholder value. It's attentiveness to all areas of the operating systems that makes the company strong. It's not a program you can run for a year or 2 or 3 and expect to get consistent results.

Innovation and cost reduction are both part of the operating system. If you treat it as a project that you're going to run for a year or even several years and then shift priorities back to one or the other, you're going to get inconsistent results. Executing on our business model consistently is how we've been successful over many years. Building in all the elements of our reimagining and business transformation that you've heard about today serves to further strengthen our core business model and bolster our ability to continue our track record of end market outgrowth and 25% leverage over the next several years.

When combined with the long-term sustainability megatrends underpinning our end markets, the powerful free cash flow we generate and the balanced capital deployment of 100% of excess cash over time, we are uniquely positioned to continue to drive differentiated shareholder returns.

At the outset of the presentation, I outlined what I hoped everyone would take away from today's call, for you to walk away with confidence that we will outgrow the economy at large, outgrow our end markets and that we will deliver on 25% leverage over the mid and long term. I hope today's investor briefing has achieved these objectives. And with that, Dave, Ray, Chris, Zac and I'll be happy to take your questions. Operator?

QUESTIONS AND ANSWERS

Operator

(Operator Instructions)

Your first question comes from Andy Kaplowitz with Citigroup.

Andrew Alec Kaplowitz - *Citigroup Inc., Research Division - MD and U.S. Industrial Sector Head*

Mike, when you think about the 4.5% organic revenue growth over that 3-year period, '17 to '19 that you recorded, that didn't include what we would consider these new megatrends you talked about such as increased IAQ and also wasn't during a time when you were reinvesting the $300 million back into your business. So would you say that these megatrends and the reinvestment gives Trane a good probability of reporting that kind of growth or more over the longer term?

Michael W. Lamach - *Trane Technologies plc - Chairman & CEO*

Yes. Andy, I think the best way that I've always thought about it is constructing a portfolio that could really grow at a multiple of GDP. And we really were committed to that when we did the spin, both of Allegion, frankly, and under the Ingersoll Rand assets to create this climate focus, which we think rides this tailwind of sustainability, greenhouse gas emission reduction, lowering the energy intensity of the world, providing better cold chain access and delivery for food and medicine. All those things should go into multiple GDP.

So in some ways, you've got to take what the base economy throws at you. But my view would be to do -- my view would be from a performance perspective to operate at a multiple of that. Now whether it's twice or 3x, that's really dependent on how innovative can we be and to what extent can we drive some of this innovation and commercialize it. But I'm just incredibly optimistic around the growth rates going forward.

Andrew Alec Kaplowitz - *Citigroup Inc., Research Division - MD and U.S. Industrial Sector Head*

And Mike, just a few years ago, you used to talk about your digital business being $1 billion. You don't want to talk about it like that anymore, I get it. But is there a way -- I mean, you talked about it a lot today in the prepared remarks. Is there a way to think about that business today maybe as a percentage of the service business? You talked about 45% of your North American HVAC business as a service. So how much is more recurring revenue? And you can put in the assessments that you've talked about in IAQ in the past. Is it becoming a lot bigger portion of that service business?

Michael W. Lamach - *Trane Technologies plc - Chairman & CEO*

Andy, I'd tell you, back 5, 7 years ago, when really the whole digital strategies that companies talked about came into focus and a lot of companies talked about the digital strategy and expressed it in a very sort of specific to growth rates. To us, it was inconsistent with the fact that you monetize a digital strategy across so many elements of your value stream that it's very difficult to be able to pinpoint that.

It helps in the way that you provide a warranty or predicted diagnostics or monetize performance guarantees that helps in the way you provide service or leveraging overhead that you would be dispatching and reducing the required head count because you're not as able to handle a percentage of those service inquiries remotely. So all those things really encompass a dozen or more areas of the value stream that impact profitability and growth rates of a company. And that, to us, has always been the hallmark of a digital strategy.

I think that this pandemic has accelerated that. We see that in our daily lives. The amount of activity and bandwidth we're consuming at home, whether that's for education or shopping, all the way through to how buildings are going to be maintained, measured. One of that measurement is on energy savings or the indoor air quality of the building. I think you'll see an acceleration of this going forward. I think it will be embedded into the growth rates of the company. It's going to be very difficult to specifically say how much of the value creation as a company is associated with this. But my guess is that we pick up 3 years or 5 years maybe acceleration as people look for more creative ways to be connected and have some certainty or surety around how their building or how their cold chain is actually operating.

David S. Regnery - *Trane Technologies plc - President & COO*

Yes, this is Dave. The only thing I would add is we've seen an acceleration in our connected building strategy, especially in our commercial space. And we have over 21,000 connected buildings right now. And really with indoor air quality, we're really able to leverage that. So we understand when a unit is not performing the way it was designed. And we can either remotely fix that. In some cases, we have to dispatch technicians, especially when it comes to things like fresh air exchanges. If dampers are not operating properly, we're able to detect that. And then we're able to make sure that, that building gets back online and is operating in a very safe manner.

Operator

Your next question comes from Julian Mitchell with Barclays.

Julian C.H. Mitchell - *Barclays Bank PLC, Research Division - Research Analyst*

Maybe just a question on that Slide 46, the $300 million of annual savings. So I think you're getting about $100 million of that this year in 2020. Maybe help us understand the phasing of that remaining sort of $200 million, how much we get next year, perhaps, or is it more back-end loaded? And also, how concerned, if at all, are you by the pressure that higher input costs could provide in the next 12 months or so?

Christopher J. Kuehn - *Trane Technologies plc - Senior VP & CFO*

Julian, this is Chris. I'll start here and appreciate you joining this morning. So you're right. The first $100 million of the $300 million in total was cost that we took out here in 2020. And when we talked to you back in October, we had $140 million identified of the plan, of which $40 million would be incremental in 2021. So that gets you the $140 million in total for the first part of the program.

The new program or addition we're adding today of $160 million is really earned, let's say, equally over time over the next few years. And we will hit that run rate of $300 million of savings by 2023. So I'd look at it probably even over that period.

And then your comment on or your question on input costs, part of the standard work that we drive as part of the company is really making sure that we have an ability, with our innovation, to price above what we're seeing input cost to be, let's say, 20 to 30 basis points of price over what we would call material cost or raw material costs. So that would be part of our standard work as we go forward. It's been successful in the past, and we will continue to do that and drive that going forward.

Ray Pittard - *Trane Technologies plc - Former President of Transport Solutions - North America, Europe, Middle East & Africa*

Julian, the only thing I'd add, this is Ray Pittard, is that the projects that we're talking about in the supply chain side are a little bit longer cycle. They're complex, and so they do take a little while. It's cross-functional. It's like our product growth teams where it involves engineering, sourcing and manufacturing, oftentimes retesting and design. So there is a little bit of a cycle that you have to run through there. But we have great confidence -- and the teams have identified the opportunities with some of the new capabilities we discussed. And so I think the confidence in the $300 million overall is very, very high for us.

Michael W. Lamach - *Trane Technologies plc - Chairman & CEO*

Yes, I'd probably kick the last piece of this thing, Julian, would be to say that the cycle times to do that work are down about 25% or improved 25%. So we're really working hard to be more agile in some of those projects. But the programs that we show here totaling the $300 million are very deeply programmed out with resources and time lines. And so the degree of confidence on this $300 million is quite high. There's a pipeline beyond that, that we just want more visibility into, a bit more time to execute that Ray and is full time on and his team is managing this. And so a high degree of confidence that we can get that done in the time frame allotted here.

Julian C.H. Mitchell - *Barclays Bank PLC, Research Division - Research Analyst*

And then just my follow-up around perhaps capital deployment. You mentioned a little bit of it on Slide 48. But just wanted to push a bit more perhaps on how attractive you see perhaps larger M&A today. Or do you think that public market valuations are just such that it's very difficult to find attractive deals in this environment, and so buybacks are a sort of likely -- more likely move for next year?

Michael W. Lamach - *Trane Technologies plc - Chairman & CEO*

Yes. We've been successful. We've been able to get a few things done. We've got a few more things that we think will close relatively soon. Generally, they're going to be -- we see more private company transactions at this point in time. And there -- yes, there is a wider bid-ask relative to the jump-off point. Obviously, you saw this morning, they use '19 EBITDA versus '20 and obviously, us looking at a way at it. But in the long run, I think structurally, we're just spending more time understanding these opportunities, and we're still closing them.

From a public company perspective, nothing really there has changed much. And I think there is value to be created in combinations, but we've always felt that we're dealing with a really strong foundation. Anything here that we would do of a transformative nature would have to be really good for shareholders. And if that were the case, we'd certainly participate. But a lot of what we're seeing here, I would say in the next 1 to 12 months is really in that bolt-on technology, a bolt-on channel category.

Christopher J. Kuehn - *Trane Technologies plc - Senior VP & CFO*

Yes. Mike, what I would add, back in October, just as a reminder, we had talked about reimplementing all aspects of our capital deployment priorities, Julian. And that includes M&A and share repurchases. So to Mike's point, there'll probably be some things we'll see here over the next 3 to 6 to 12 months.

On the share repurchase side, again, we paused those for 6 months or so as we're really entering the pandemic and the downturn. All elements again are available to us at this point in time and going forward. And we really see that as a good use of cash and we're trading below our intrinsic value. And I would just close by just reminding, our goal remains to be to deploy 100% of excess cash over time, and we're reaffirming that again today.

Michael W. Lamach - *Trane Technologies plc - Chairman & CEO*

And Chris, one last comment I'd make is on cash flow ROIC of the M&A that we've done. You look at the 22 deals we've done and the $2 billion we spent over the last few years, it's really sort of extraordinary to go back and look at that now, whether it's been a month or 3 years and you look at the actual results or forecast results that are coming to fruition. And across that portfolio, Chris mentioned a couple that were 40% cash flow ROIC investments.

I would say that broadly, we've seen all of the acquisitions made in that period of time to be 40% or better. And so the ability for the company to really do a nice job integrating both sourcing, paying the right price, integrating, getting value out of the acquisitions is above all of -- on the aggregate basis, above all of our business case expectations at this point.

David S. Regnery - *Trane Technologies plc - President & COO*

Yes. And I could just add, I think that some of the M&A that we've been able to complete over the last several years has really helped fuel some of our innovation. So if you look at like a small acquisition we had in Europe of thermal coal, it really became the basis of our 4-pipe chiller, which is a heat pump technology, which when I talk about these adjacencies of the applied heating market in Europe, that acquisition is really leading us in that direction.

Arctic Chiller, another one where it really helped us learn a significant amount about magnetic bearing compressors. So again, the operating map within a chiller has now expanded, and we're now playing in spaces that we didn't think were possible in the past. FRIGOBLOCK in the Thermo King business, another example of really accelerating where we're going with the electrification of that portfolio. So some great acquisitions, some great technology and really has helped us fuel our innovation pipeline.

Operator

Your next question comes from Scott Davis with Melius Research.

Scott Reed Davis - *Melius Research LLC - Founding Partner, Chairman, CEO & Research Analyst of Multi-Industry Research*

Can you talk a little bit about your supply chain? I mean, it's got to be a little stressed right now but perhaps just a little color on that.

Michael W. Lamach - *Trane Technologies plc - Chairman & CEO*

Well, it was stressed a lot more back in the March, April, May time frame, Scott, honestly. We were on multiple calls that day, really obviously, like all manufacturers have been in and out in certain areas and traversed the world starting in China and over to Western Europe and, finally, India and Mexico. And so yes, it's stressed, but really, it's not to the point where we're seeing any material delays in anything that we're doing. And frankly, we feel better about it right now than we would have 5, 6 months ago for sure. It's something that I would say we're down to weekly calls, right, as a management team. It's certainly not the daily firefighting drills that we were on before.

Scott Reed Davis - *Melius Research LLC - Founding Partner, Chairman, CEO & Research Analyst of Multi-Industry Research*

Okay, that makes sense. And then just a follow-up on aftermarket, I think you're around 31% or so. Is there like a longer-term target or goal? Is there like an optimal level that you can think about that you're trying to drive towards?

Michael W. Lamach - *Trane Technologies plc - Chairman & CEO*

I always think that if you could have the gross margins of your aftermarket business, profitability exceed your SG&A for the entire company, that would be a pretty strong position to be in. So I look at that as sort of a milestone there. It really supports something north of 50% in our Commercial HVAC businesses. So I like where we are in the Americas on that front, and we see Europe next behind and closing fast and ultimately Asia, led by China, to close.

So I think getting the portfolio of Commercial HVAC to 50% is a good start. Of course, keep pushing on the Commercial American HVAC team. I don't think it's a limit to 50%. But ultimately, if you can get your contribution margin from service to offset the full overhead of the company, it would be a powerful flywheel, which we talked about earlier today. But that's a great example of a good flywheel.

Operator

Your next question comes from Joe Ritchie with Goldman Sachs.

Joseph Alfred Ritchie - *Goldman Sachs Group, Inc., Research Division - VP & Lead Multi-Industry Analyst*

Maybe my first question to Dave. You talked a little bit about the comprehensive IAQ assessments that you were doing. And I like the way that you broke that out between like day 1 and day 2. I'm just curious, in terms of the discussions, like how far along are you on the day 1 discussions? I would imagine day 2, given that they're more structural in nature, are still very much ongoing. But I'm just curious like how far along are you on those discussions with how you guys are defining that opportunity.

Michael W. Lamach - *Trane Technologies plc - Chairman & CEO*

Yes. I'll start. We continue to see strong demand for IAQ assessments and service. We have a large growing pipeline. As I said in the opening comments, we take a very holistic view of this. We don't just look at a component. We look at the entire system. There's a lot of commercial office space that's out there. I think it's 400 billion square feet, so there's a lot of space and a lot of opportunities in front of us.

The holistic approach is we really work with our customers, and it is a day 1 and a day 2. I'll give you an example, Joe. We're working with a school district in the Midwest, right? And this is K-12. And working with that customer on day 1, we understood what their needs were. And this particular was, yes, we want to improve our indoor air quality, but we're really concerned about surface areas because we have students that are switching classrooms and they're going to a different desk. And our expertise, one of the things that differentiates Trane Technologies is our expertise and being able to apply which solution to make the best impact for the customer. And there's a lot of solutions that you're going to read about that are being marketed from an upgrade to filter density to electrostatic filters to bipolar ionization to photocatalytic oxidation, UV lights and all these things are very sophisticated.

And our expertise is being able to help that customer. So in this school district, we worked with our customer. We implemented a photocatalytic oxidation solution. And this particular photocatalytic oxidation solution generates H_2O_2, which is dry hydrogen peroxide. Dry hydrogen peroxide is very safe. And the unique element about this is it has a half-life. And that's the amount of time that it could actually stay in the environment before it dissipates. The half-life could be up to 30 minutes.

So for this school district, not only did we solve their indoor air quality. But now because of this dry hydrogen peroxide actually settling on surfaces, in this case, desktops, we've actually removed pathogens that could exist on that desktop. And those types of examples -- I mean, I have another example. We have a large office complex in the Southeast, where, again, what's the mission of the building? What is the purpose and how can we help? Day 1, yes, we got all the equipment operating. Day 2, we sat with our customer. And this particular office complex had a lot of small 4-walled offices inside it. So in that case, we implemented a bipolar ionization system, which is very good for small concealed offices, implemented that with the customer. We augmented it to their heavy traffic areas and put a dry hydrogen peroxide system into like cafeterias and some of their large conference rooms.

So we're seeing that happening. We have obviously follow-up calls with all the assessments that we've done. And it really is -- it's becoming -- we're seeing a lot of momentum in that space. I think it's a little too early to size that but we're seeing a lot of opportunities.

David S. Regnery - *Trane Technologies plc - President & COO*

I think one of the evolutions, too, Joe, has been that where we're going out and doing these assessments, which often will involve technicians and our engineering team will also, at the same time, for the quick fixes, actually implementing a lot of repairs right then? So Dave mentioned, one of the things you first do in a building is you make sure the outdoor air exchanges are happening per the standard. And one of the things that happens there is the simple linkages that control dampers and move the positions or both are not set or not functioning correctly. And so while we're there, we're doing repairs at the same time.

So that's probably the evolution of what we're seeing here as day 1s including on the assessment, if we can, taking action with control systems or damper positions or filtration at the same time. But there's urgency to all this and it makes no sense for us to come back twice or multiple times if we don't have to.

Joseph Alfred Ritchie - *Goldman Sachs Group, Inc., Research Division - VP & Lead Multi-Industry Analyst*

Got it. That's helpful color from both of you, guys. My 1 follow-up, I just wanted to go back to Julian's question from earlier on commodity inflation. Mike, I remember it must have been the 2017 time frame, I think, when you guys were expanding into China. There are a few quarters where there's a bit of a struggle to really kind of offset some of the inflationary costs that we saw back then. I'm just wondering, like as you kind of head into 2021 across your portfolio, are you further -- far along in your penetration in China that you don't see that being an issue? And how are you just thinking about offsetting commodity inflation in 2021?

Michael W. Lamach - *Trane Technologies plc - Chairman & CEO*

Yes. Well, there's 1 thing about the direct sales force before you get into sort of pricing mechanics, which is a direct sales force on a technical sale into a commercial or applied building done by a technical team or an individual sales force that has that sort of training background with us really creates the opportunity to become the basis of design. And when you're the basis of design, you're generally going to have an advantage. You determine the system, the efficiencies, what's required, how the building will operate, the sequence of operation for the building. And that all really helps then create the value framework for the customer and for us.

So that takes a lot of -- it's going and I'm very happy it's been a great success for us. But specifically, as it gets to maybe a quote or a proposal that you would have provided to a customer where the building is being built or recorded or reconstructed, there could be a time lag. And a larger applied system, typically, it could be 3 months, 6 months, 9 months. There are times you can get caught a little bit in that equation where if you've got a dramatic run-up in steel or copper or aluminum or some Tier 2 commodity components, it can take you a lot of of catch-up. But ultimately, we do catch up and we've been able to recover that for a long, long period of time. You just do get some anomalies.

By the way, you get it the other way, too, right? Things drop precipitously, and you're sort of locking up the higher deliveries and it can work the other way. And you saw that in the 2013, 2014 time frame, maybe even a little bit in 2019, I think we had a more positive spread -- more than the 20, 30 basis points at that point.

Operator

Your next question comes from John Walsh with Credit Suisse.

John Fred Walsh - *Crédit Suisse AG, Research Division - Director*

So I guess maybe the first question. You talked with M&A, getting that heat pump technology in Europe. A lot of discussion out of Europe around stimulus, not only around greenhouse gas emissions but also employment, which I think sometimes gets missed. Can you talk about what you're seeing maybe around the world from some global stimulus around energy efficiency? And maybe you can use Europe as an example.

Michael W. Lamach - *Trane Technologies plc - Chairman & CEO*

Well, Europe's been sort of a double benefit, right? You've got this enormous movement around the environment, around greenhouse gas emissions and inspecting codes and standards and policies and law. And it really effects both our HVAC and our refrigeration business in a very, very positive way. And then, of course, any stimulus really is a benefit, and clearly, we ride that general economic activity benefit.

But I would say more than stimulus, for us, it's been really around riding that sustainability wave for the most part. And if you think about here in the U.S. under a Biden administration, clearly, there's going to be a focus on environmental sustainability, around energy efficiency, whether that's buildings or beyond or rejoining the Paris Accord. I think all of that, of course, is very favorable for our company going forward.

And in China, the last couple 5-year plans that have been published by the Chinese government, clean air, clean water are priority. And that's coming through in what we're seeing in China as it relates to standard adoption there and more attention spent on the combination of energy efficiency and greenhouse gas emissions there as well. So I mean the world is moving in the right direction. I mean this is really the reason the company today is a focused climate innovator is because these aren't going away, these trends and conditions. The stimulus certainly is an added benefit to all of that.

John Fred Walsh - *Crédit Suisse AG, Research Division - Director*

Okay. And then on this connected building opportunity, just wanted to get your thoughts on where you believe your entitlement is versus maybe at what point in that broader building automation solution you hand off to maybe another provider that is doing stuff beyond kind of just HVAC? And I guess the real heart of the question is you have all this domain expertise but is the customer actually buying the digital experience through Trane? Or are you feeding your information into a different point where the customer is purchasing that digital experience maybe at a broader building level? Just trying to understand that handoff and delineation.

Michael W. Lamach - *Trane Technologies plc - Chairman & CEO*

Yes. Joe, the first point is we're well beyond HVAC integration, working integrations with our customers and can work across the entire gamut of what the customer wants to integrate, whether it's looking at occupancy and security and how it integrates into fire as an example. But broadly speaking, when you think about HVAC utilization of energy in a building, it's dominant, right? I mean it's the #1 operating expense in the building. And so you tend to have customers look at HVAC and lighting together because that's what drives energy efficiency.

It's also what would drive into air quality. So you put those 2 together, and that's a very typical simple integration. Customers trying to look at fire and light safety in a separate budget and there's always mechanical and electrical interface between that outside of software by code. Things have to happen in the case of fire smoke in a building. It's just not trusting the digital presence of recognition of that. It's a physical reaction to a building. And then the third bucket they look at is security, which changes by the requirements of the customer, type of activity happening inside the building.

So you still see today about 99% of buildings not integrated across those 3. And then for the 1% that are integrated, our best-of-breed integration capability, utilizing other leading fire and security or other leading brands of business -- lighting would be another example. We have a high degree of capability in integrating those together. So our controls business broadly has been growing at a double-digit rate for more than a decade. And that's just indicative of the fact that I think the strategy is working there.

Operator

Your next question comes from Gautam Khanna with Cowen.

Gautam J. Khanna - *Cowen and Company, LLC, Research Division - MD & Senior Analyst*

I wanted to get your perspective on the resi replacement cycles. How do you think that unfolds over the medium term and sort of what informs your view on that?

Michael W. Lamach - *Trane Technologies plc - Chairman & CEO*

Yes. I think the phenomenon in 2020 is certainly a phenomenon. It's not repeatable. I think you return to more traditional industry rates. We're not providing guidance here for 2021. But what I did say on the Q3 call is there's an expectation, there's probably an embedded sort of low single-digit growth rate in residential units. And then, of course, a lot of it from there will depend on pricing and input costs and what needs to happen to recover against cost increases.

But between new construction activity, retrofit activity and the sort of the normal cadence of dilapidation of buildings or new construction of buildings, I do believe you've got this low single-digit embedded growth rate. And unless interested in the cycle, if you will, because I just don't see a cycle anymore -- any sort of math that we would have done historic in a cycle has proven to be incorrect for probably at least a half a dozen -- 5, 6 years, even at this point in time.

So I don't see the traditional residential cycles anymore really playing a factor in our thinking about all this. We generally plan for low single-digit growth rates in that business, a little bit of a kicker when you get regulatory change and/or when you get additional pricing that needs to happen because of material inflation. So maybe at the end of the day, you end up with something that's more toward mid-single digits. So it's a good business. But 2020 was a freak occurrence.

Gautam J. Khanna - *Cowen and Company, LLC, Research Division - MD & Senior Analyst*

Understood. And I know you mentioned on the M&A front that large transformational M&A is not likely for Trane over the next 12 to 18 months. But maybe if you could just opine on what you think happens with some of your competitors. Do you anticipate there will be room for some big consolidation? And if so, how that might impact your thinking on what to do next?

Michael W. Lamach - *Trane Technologies plc - Chairman & CEO*

Well, when we think about 15 -- thank you. When we think about 15 companies that are out there that got size and scale, once you get past the first 4, one of which is us, they drop fairly precipitously. And when you think about the level of commitment that you've got to make from an engineering and R&D perspective to stay in the game from a compliance or energy efficiency standpoint, I think there are lots of combinations that could make sense out into the future.

So again, I think that all things are possible but you've got to have willing participants. And obviously, some work better than others as it relates to the portfolios or to the lack of overlap or overlap. But generally speaking, yes, I would see consolidation in the future in the HVAC industry. It's -- I don't have a time frame for you, but certainly, I would see that being a probability.

Operator

Our next question comes from Nigel Coe with Wolfe Research.

Nigel Edward Coe - *Wolfe Research, LLC - MD & Senior Research Analyst*

Thanks for the information, really, really helpful. You've got a lot of service capital and you talked about excess cash, and it looks like you're going to exit this year with about $2.5 billion of excess cash and that grows to over $3 billion (inaudible)

Michael W. Lamach - *Trane Technologies plc - Chairman & CEO*

Nigel, sorry to interrupt you. You're coming in so quiet. I'm not sure if you can increase the volume at your end.

Nigel Edward Coe - *Wolfe Research, LLC - MD & Senior Research Analyst*

Is this better?

Michael W. Lamach - *Trane Technologies plc - Chairman & CEO*

That's perfect. We didn't hear a lot of what you said.

Nigel Edward Coe - *Wolfe Research, LLC - MD & Senior Research Analyst*

Yes. Yes, that wasn't my intention, by the way. Maybe my headset's finally given up. But just talk about service capital. You're going to exit this year with about $2.5 billion of surplus cash at least, and that grows to $3 billion next year without significant deployments. Most of the acquisitions to date have been small bolt-ons. You mentioned the tens of million of dollars. So just wondering kind of what the philosophy is on excess cash for the next 12, 18 months. I mean, over time, it gets deployed, I understand that. But do you wait for maybe something transformational and keep the balance sheet a little bit flatted? Or do you think that 2021 could be a year where we see a big pickup in deployment? And then on top of that, talk about maybe something a bit larger. Do you see scope for acquisitions in Asia because that's where the market is a bit more fragmented?

Michael W. Lamach - *Trane Technologies plc - Chairman & CEO*

Yes. I think, Nigel, you have to be opportunistic across the board, whether that's on M&A or share buyback and flexible in that regard. And I think you got the points right, which is the commitment to deploying the cash over time, right? It's not in our mind some sort of calendar cutoff where the excess cash gets paid out. But certainly, we're in a strong position today to do more things than we could have been doing a couple of years ago. Balance sheet is in great shape. And so I think this is an opportunity to deploy it through its best use.

I think it's extra bit of EPS firepower that we have that we intend on using. And I can promise you it will be in the same disciplined approach that we've had in the last few years. And look, to the extent we could find acquisitions that return the kinds of CF ROICs that I talked about earlier, we'd love to do that. I think we're in great shape. We've got the capacity, I don't mean just balance sheet, but from an ability and capability of really integrating these things and having them performed well. I think we're in a great position with our team here to do that.

Christopher J. Kuehn - *Trane Technologies plc - Senior VP & CFO*

And Mike, I would just add, obviously, Nigel, our goal would be in maybe the fourth quarter earnings release, hopefully provide as much visibility as we can out to investors at that time, and that would include capital deployment plans for the year. So our intent is to provide as much information as we can, and we'll likely update you here in that late January, early February time frame.

Nigel Edward Coe - *Wolfe Research, LLC - MD & Senior Research Analyst*

Great. And then my follow-on is regarding the innovation and investment commitments. And I'm curious, the pickup in investment, you're sort of highlighting, is it because the cost of next-generation efficiency and refrigerants is intrinsically rising to get to that next level of efficiency? Or is it more a case of just wanting to extend the gap between yourself and your competitors? Just curious about it.

Michael W. Lamach - *Trane Technologies plc - Chairman & CEO*

It's a little bit of a flywheel. And I know we use that analogy, but it's a little bit of a flywheel where all the pipeline projects we're seeing are generating returns that really help us feel incredibly confident about the 25% leverage opportunity. And I actually feel the same way about the other projects that we would be investing on from a productivity perspective as well, but a little bit of a flywheel.

And I do think that through some of the investment reviews that we're doing and some of the great work happening by product management teams around the world looking at all these adjacencies, there's a really full pipeline that Dave alluded to, a couple hundred projects and it's probably the same in the last couple of years, we've been maintaining a pretty consistent pipeline. One thing about those pipelines, they tend to be long-term road maps. Probably the shortest I've ever seen is 3 years. Some of these go, say, 7 years. And so the sense that there is a robust pipeline of projects is great.

And the thing is, if the team will bring us an idea that it's got the returns that we're looking at in terms of target, and we have a high degree of credibility around that team's performance because, again, the teams are performing, it makes these conversations incredibly simple and the flywheel kind of turns a little faster in that regard. So I feel like the future looks pretty bright in terms of that. I don't know we're running any faster because we're worried about a competitor running faster. I just think that there's a good flywheel here and a good cadence and operating system on how we make these decisions and choices that are really paying off.

David S. Regnery - *Trane Technologies plc - President & COO*

Yes. The only thing I would add is our product growth teams and the intimacy we have with our customers is incredible. And we're constantly talking and finding out how we could help the customers create value. And we've also, through our operating system, have really been able to get really good at getting these products to market. So the velocity of moving through the pipeline is dramatically improved over time.

A great example of that, Nigel, is the -- in our Thermo King business back in April, our product growth teams were talking to the pharma companies about the vaccine. And they -- by talking to those customers, they understood their need. And their particular need was to be able to transport this and store it at -70 C. And from the April time period within 6 months, we took a product we had in our portfolio, we modified it. It's very reliable. And here we are with a -70 C storage unit to really help this vaccine that's being distributed on a global basis. So a great example of innovation, a great example of getting close to the customer and understanding what the needs are, and in this case, having a real impact on the globe.

Operator

Your next question comes from Steve Tusa with JPMorgan.

Charles Stephen Tusa - *JPMorgan Chase & Co, Research Division - MD*

Could you maybe just talk about, as a starting point, I know like the business model and your kind of market outgrowth forecast. But I guess just on that kind of new demand cycle for the next 18 months, any kind of updates there as we head into year-end on how customers are feeling, what the feedback has been? And then I have a follow-up on IAQ.

Michael W. Lamach - *Trane Technologies plc - Chairman & CEO*

Sorry, Steve, I didn't catch you, just generally or specifically on a particular area of the business were you asking?

Charles Stephen Tusa - *JPMorgan Chase & Co, Research Division - MD*

Generally, commercial HVAC, kind of the new stuff. I know it's not as important for you guys and your business model has evolved. But what should we expect from the commercial new equipment business in the next, call it, 18 months? I mean are we going to have a cycle? Or are we just -- is this going to be incredibly muted because of general economic activity? Just curious as to your most updated thoughts there.

Michael W. Lamach - *Trane Technologies plc - Chairman & CEO*

Yes. I'd tell you Steve, I believe the normal years to be nervous -- there hasn't been at this point kind of talk that far out in the future. I usually would give that guidance in the January, February time frame. I would say I'm particularly nervous to opine on that right now with what's happening here as we head into the crowded holiday season and look to see what happens here with vaccinations and all the uncertainty that goes with COVID right now.

So I would say nothing has really changed in terms of the outlook that we gave on the Q3 earnings call, which was full revenue's down 5% and deleveraging better than gross margin. I made a few comments at that time around 2021 as well, as an example, in the res business. But yes, it's a little too early for us, Steve, here. But I'm not seeing anything that would tell us that indoor air quality going to be around for a long time and it's not going to be sort of a longer-term tailwind to whatever the economic cycle might be at the time. That's for certain.

Charles Stephen Tusa - *JPMorgan Chase & Co, Research Division - MD*

What are you seeing as the most common immediate solution, the content for you guys versus, say, whatever a system replacement cost? So if I'm a guy with an old system and I just want to do the IAQs to get my building up to a certain level, is that 5% of the system replacement cost? Is it 10%? Like what are you seeing from a content lift perspective early on in these discussions?

Michael W. Lamach - *Trane Technologies plc - Chairman & CEO*

Yes, the kind of calls that we get or the calls we're making on customers that we have today in our portfolio are -- the advantage is we go in there without a preconceived notion about what solution we have to sell to somebody, right? I mean we don't manufacture filters, right? We don't manufacture all of the devices that we would use and spaces or duct work, photocatalytic or others as an example. But the ability to step back and look at what makes sense, as Dave said, for the building -- for the purpose of the building, school versus hospital versus office building, you name it.

But the #1 thing that people want to know is, are they getting enough air changes in the building? And of course, if you jump to the other end of the equation, they start over-filtering or putting devices where they don't belong, you tend to create additional problems like no airflow out to the spaces or no exhaust to make up for the additional airflow from the end of the building and pressure and humidity problems. And so they're trusting us with broader comprehensive solutions view.

So it's typically looking like we would go in, make sure that the building is operating to a standard for its purpose, that we've done any immediate repairs. And then almost always as part of that, there is a road map based on the customer's ability to pay full in budget, what they want to do going forward to get to that next level. Because these things are costing more energy in terms of just what every solution you put in place uses more energy in the building. Buildings -- obviously, HVAC is the driver for energy cost in the building.

We're seeing, I would say, a second or third leg of that, which is, how do I pay for this through my operating budget? What can I do to be more efficient through that? So I think it ends up with assessments and repairs. It ends up with likely a maintenance contract, maybe a digital connected contract along with an asset renewal based on the customer's appetite to be able to handle the change. And by the way, if the customer has got an immediate need and doesn't have the capacity, think about a school district or a university, that's where I think performance contract that comes in, in the back end. And we'll start to see more performance contracts, where we provide the assets and the maintenance and the savings that generate from that pay for the assets, the principal and interest on the loan. I think that will be something to watch for in the out-years as well.

Charles Stephen Tusa - *JPMorgan Chase & Co, Research Division - MD*

Right. So this sounds just a little more nuanced than, hey, IAQ could be $40 billion of opportunity for Trane? Like it's kind of -- it sounds like it's very hard to calculate and do math around a number like that, a little more nuanced.

Michael W. Lamach - *Trane Technologies plc - Chairman & CEO*

Yes, totally. At 400 billion square feet of commercial space around the world, is it $0.10 a foot? Is it $1 a foot? I don't know. It depends on sort of what the building is, what the financial capacity is, what the standards need to be. So I think it's a long-term trend. There'll be people out selling devices, and that's okay. I mean, in most cases, it's something that's not going to hurt unless it's -- we've seen people filtering up to the point they don't get airflow. That hurts. We've been tracking some of those issues out there. But generally speaking, people putting in photocatalytic devices or those solutions aren't going to necessarily hurt anything. But it's not the long-term ultimate solution for what buildings will need to do.

Operator

Your next question comes from Jeff Sprague with Vertical Research.

Jeffrey Todd Sprague - *Vertical Research Partners, LLC - Founder & Managing Partner*

I was hoping for actually a little bit more context and perspective on the magnitude of the new investment. And what I mean by that is we have the number of $300 million, right? But just thinking about what you historically have spent. I know your R&D is 1.5%. I know that doesn't fully encapsulate what you spend on new products, but that would be like $200 million or so. Can you just give us some sense of -- by what percentage you're actually increasing your new product spend here as part of this program?

Michael W. Lamach - *Trane Technologies plc - Chairman & CEO*

Well, first of all, yes, you have a good point on the R&D. You'd have to probably add about $300 million, my best guess, if you think about sort of all the engineering and product resources, management resources to get you closer to $0.5 billion in the number itself. Like the product growth teams, if you elevated up at the enterprise or company level, what we're trying to do is really always remain a top-quartile EPS grower and a top quartile cash flow ROIC company.

And the equivalent from a PGT -- that team is trying to grow market share and margin, we're trying to grow EPS and cash flow ROIC. And fortunately, we haven't had to make these choices, which was a point I was trying to make in my comments at the beginning. It's not a binary choice. If we're approving new product development or new technology introduction at 25% incrementals or better, if we're approving IT projects or supply chain projects or any productivity project at that level or better, we're not having to make a difficult choice between the 2.

So I would say that you'll continue to see our investment in engineering and R&D probably grow at approximately the same rate as historically has been the case. It may tweak up a little bit in any given year if there are enough projects that we can execute in a given year. I mean some projects are more expensive than others. I mean major refrigerant changes in the HVAC business might provide a need to invest more sooner in that regard. But generally speaking, I would look for the same percentage spend across the board.

Jeffrey Todd Sprague - *Vertical Research Partners, LLC - Founder & Managing Partner*

Yes. And I guess as a natural follow-up to that then, Mike. I mean you've said in the past, right, that your incrementals are kind of governed by your gross margins, which mathematically makes sense. It doesn't feel like this effort is really kind of increasing your leverage, right? I mean we've got 600 or 700 basis points between gross margin and the targeted 25% or so incremental. Is there some other moving piece inside that? Maybe it's just labor inflation or health care or other things, but it would seem like the program would actually lift your incrementals because it's going to -- it should lift your gross margins also.

Michael W. Lamach - *Trane Technologies plc - Chairman & CEO*

Yes. No. It does, Jeff. Clearly, it would over time, you'd expect that those could go up as your gross margins go up. And there's years that you're a little bit better and a little bit worse than that, I'm sure. But I just think that over a long period of time, and I'm talking like a decade, the reality of if you can be a top-quartile EPS grower and you could be a top quartile cash flow ROIC company, you're generally going to be sort of in that 10-plus percent EPS growth. You're generally going to be in that sort of 25% cash flow ROIC range.

And that generally, in our equation, in our math, works out to just keep hammering 25% incremental margins and keep growing faster than the market and our competition. And if we can do that, then we can assure investors that we're always going to be targeting plans every year at a top quartile. And if you really go back and look at it over a long period of time, we've always been top-quartile EPS and cash flow ROIC through that. So the confidence -- the message today is the confidence that we can execute that going forward. We can outgrow the markets and we can at least maintain a 25% incremental margin going forward and turn it into cash and redeploy that. That's our message.

Operator

Your next question comes from Joel Tiss with BMO.

Joel Gifford Tiss - *BMO Capital Markets Equity Research - MD & Senior Research Analyst*

All right. Sorry to pile on with all the acquisition questions but maybe just a different flavor. Are there any technologies that could really advance you guys even if it's smaller stuff? Like can you give us a sense of what technologies you guys are pursuing or looking for like in kind of a 3- to 5-year time frame that could really become relevant?

Michael W. Lamach - *Trane Technologies plc - Chairman & CEO*

Yes. I'd say anything that would take 1 pound of greenhouse gas emissions out of the atmosphere related to HVAC and refrigeration and anything that could reduce a lot of energy going into a building would be an area for us. And if I tell you any more than that, I'm probably telling you what the 200 projects look like but they all look like that. But that's fundamentally what we're after, 1 of 2 things: reduce the energy intensity of the world, reduce greenhouse gas emissions in the world related to what we know how to do, and that is around HVAC refrigeration, how buildings operate, how people interact with buildings. That's what we know how to do.

Yes. And as I said earlier, we've been very successful in the past with expanding our heat pump capability with thermal coal and also the electrification in our TK business. So Thermo King follows the same logic, where it's reducing the energy intensity of transport refrigeration, reduced greenhouse gas emissions, but it's also the added piece of really increasing the yield in the cold chain, whether that's through the vaccine. And so we've found ourselves in interesting areas there. We've acquired integrated telematics businesses in the past. We've gotten involved with auxiliary power units and developed a market-leading position there. And so the same formula works in the TK business.

Operator

Your next question comes from Deane Dray with RBC Capital Markets.

Deane Michael Dray - *RBC Capital Markets, Research Division - MD of Multi-Industry & Electrical Equipment & Analyst*

Vaccine distribution has come up a couple of different times today. And was hoping to get some more specifics. I think in Dave's answer, he cited the capability of handling -70 C. That happens to be the Pfizer requirement. Moderna is not quite as extreme at 20 -- -20 C. But Mike, can you share with us what role Trane will play? Do you have sufficient capacity? Have you gone through the scenario analysis and what kind of demand? Anything there would be really helpful.

David S. Regnery - *Trane Technologies plc - President & COO*

I'll start. This is Dave. Obviously, we're very happy to see, as I'm sure everyone on the phone is happy to see, that the distribution of the vaccines is starting. And we're -- at Trane Technologies, we're just glad to be part of that. And anything we could do to help and get this vaccine distributed or these vaccines distributed as quick as possible, that's our aim right now. And we want to be able to get this in every corner of the world as fast as possible to help save lives.

That said, you kind of hit on it. There's lots of different vaccines that are in development right now. And they require different temperature control, anything from the deep freeze, which is what the Pfizer vaccine is, which is 70 C to just general pharmaceutical, which is 2 C to 8 C. We participate in the entire cold chain so we have solutions that meet all of those requirements.

Where we see specific opportunities is number one is air. A lot of these vaccines will be distributed by air, different points in the globe, and we see that as an opportunity. We also see the cold storage, and that was the -- really the innovative invention that our Thermo King team was able to create and took a product that had been in the market for a number of years and repurposed it. I mean the product we repurposed was one that was used to serve a very niche market. It was for distribution of sushi around the globe. So with flash freeze, the sushi, to ensure the integrity of it. We repurposed that. Now we have a refrigerated container that's able to help with this vaccine distribution.

Michael W. Lamach - *Trane Technologies plc - Chairman & CEO*

There were 3 areas that we were worried about initially. One was air cargo and entered a partnership with]. We've been able to make sure that sufficient capacity is there. The other one, as Dave mentioned, was cold storage but at volumes, and so a 20-foot unit for us to hold 60,000 vials, and that's 360,000 or more doses. And if you think about that going out into an area where there might be a pop-up hospital or a lack of infrastructure and you might need to use power or use a generator, which is bolted on one end of the container, that's a pretty big solution for situations like that. So we're bolstering that as well as providing additional capacity for server -- for cold storage farms by some of the 3PLs.

The third one, and we worry about it but it's becoming a little less to worry about is just the ability of last-mile deliveries in some of the small truck. But I think lots and lots of will be moved via small truck. And at that point in time, where it is moved through small truck, it's probably going to be later in the vaccine distribution cycle. So although it will be urgent, I don't think it will be as critical at that point.

But getting mass vaccinations out to these sites, we've got the density of 5,000 people at a time waiting for inoculation, which is you think about the ability to administer shots within 6 hours of room temperature, you're looking for that kind of critical mass. That's the sort of areas that we looked at the breakpoints and thought like the deep freeze cold storage was the biggest issue, and that's where we really beefed up capacity. We developed a product and beefed up the capacity to be able to supply to customers, countries, et cetera, that need that capability.

Deane Michael Dray - *RBC Capital Markets, Research Division - MD of Multi-Industry & Electrical Equipment & Analyst*

That's really helpful. I appreciate all the efforts there. And then as a follow-up, just in terms o your perspective today, Mike, on how COVID is changing landscape on nonres construction, your discussions with office building owners. Just in terms of renovation or upgrades but also new building, how has COVID changed in terms of density of the floors? And does this in any way change what your commercial opportunity is?

Michael W. Lamach - *Trane Technologies plc - Chairman & CEO*

Yes. It's going to be evolving, as you can imagine. We've all figured out that really creative activity, whether it's brainstorming around strategy or doing a new product development, those kinds of interactions, very difficult to do online. And so at some point in time, I think you're going to find gravity back toward physical presences, albeit more distance, more careful with additional indoor air quality or environmental quality, devices and systems being implemented in buildings, probably more visuals that -- or ability for occupants, employees and buildings or tenants to look and see the quality -- into air quality of the building to be able to sort of measure that and dashboard that in a way that we can see that it's safe. I think you'll see people marketing that in terms of landlords looking to market available space. That will also be a condition.

But I would see that there's going to be probably some level of fundamental shift in who can work remote or at least some sort of future of work that would be different than people needing to be constantly always be in office buildings. But the reality is you still going to need the space. And if nothing more, then people are going to be a bit less densely occupying those spaces going forward. So at this point in time, we really don't think that there's going to be, say, a change in space, if you will. But there'll be, I would say, heavier content of indoor air quality into the budgets of customers that are operating in these spaces.

David S. Regnery - *Trane Technologies plc - President & COO*

Yes. I would say one thing that has changed is, especially in the commercial office space, is in the past, we would -- we're talking to our customers about indoor air quality. And they kind of look at us like we're not a hospital, and we've explained to them the need. And with a hard sell, I would tell you that our customers are now coming to us asking about the indoor air quality, what solutions we could build in from the inception of the building versus us having a harder sell.

Michael W. Lamach - *Trane Technologies plc - Chairman & CEO*

No doubt, Deane, you see a lot more retail space available for lease in a couple of years ahead. I mean you look at sort of 30% of small businesses probably having a tough time emerging from this. But that's something that we've tried to deemphasize over the years in favor of data centers and warehouses and e-commerce generally speaking. And so that will have an impact, but certainly not as large an impact as we would have a decade ago.

Operator

Your next question comes from Markus Mittermaier with UBS.

Markus M. H. Mittermaier - *UBS Investment Bank, Research Division - Head & US Equity Research Analyst of Americas Electrical Equipment and Multi Industry Research*

Maybe if I could come back to the operational transformation. The $160 million between repositioned IT and supply chain, could you split that out a little bit? And then when it comes to a supply chain, what's the total pool? You've mentioned kind of 80 different categories, but what's the saving number out of the total pool size?

Ray Pittard - *Trane Technologies plc - Former President of Transport Solutions - North America, Europe, Middle East & Africa*

Yes. Thank you, Markus. This is Ray Pittard. I'll take that. I think the bigger piece, the majority or larger piece is on the supply chain side. Obviously, that addresses a very large direct and indirect spend for us. The IT transformation is really material, though, in the sense that it addresses the applications, in particular that we use across the company. So there's a lot of work and opportunity to be done there that gives us ability to pivot towards our customers and our front-end systems. All of that helps to drive the growth profile that we've been talking about this morning.

A little deeper on the supply chain side, I think the 80 categories are strategic categories, and this is a prioritization we're going through to set up waves around these. And we're trying to apply these new tools and analytic approaches that we've talked about to these categories. And it really enables us to not only get a better value capture but also with the cycle reduction that we talked about, it gives us the ability to go with more throughput. The net effect of that is it creates a great engine for us over time on the productivity side that really secures an even higher level or a stronger level of productivity on a long-term basis. So hopefully, that answers your question.

Markus M. H. Mittermaier - *UBS Investment Bank, Research Division - Head & US Equity Research Analyst of Americas Electrical Equipment and Multi Industry Research*

Okay, great. And what would be the total spend across these 80 categories? Can you say that?

Ray Pittard - *Trane Technologies plc - Former President of Transport Solutions - North America, Europe, Middle East & Africa*

The total direct and indirect spend, it's all of our material spend and all of our indirect spend. Chris, do you have the...

Christopher J. Kuehn - *Trane Technologies plc - Senior VP & CFO*

Not handy right now.

Ray Pittard - *Trane Technologies plc - Former President of Transport Solutions - North America, Europe, Middle East & Africa*

We'll come back to you on that.

Markus M. H. Mittermaier - *UBS Investment Bank, Research Division - Head & US Equity Research Analyst of Americas Electrical Equipment and Multi Industry Research*

I'll follow up later. Yes. And then maybe not to beat IAQ to death, but just wondering on retrofit versus new installs. Is there any sort of change to the urgency that you've seen among your customers since the vaccine in terms of (inaudible) and is that something that you think long term is more opportunity in the new install side? Or has that urgency not changed at all?

Ray Pittard - *Trane Technologies plc - Former President of Transport Solutions - North America, Europe, Middle East & Africa*

Well, the urgency is completely on the existing building side. Anybody occupying or the ones that occupy building right now has got a lot of urgency around trying to get a day 1 solution and a road map for the future. I think that what you'll see on new construction and even buildings that are in construction now is a rethinking of the standards going into the building. And I believe that what you'll see is when you think about a standard for a building, you could have a range. One of the typical ranges would be the number of air changes per hour for a building that's designed for a typical use.

A restaurant might have a range of 8 to 12 air changes per hour. You're going to find people moving toward the upper end of these ranges. And you're going to find more designs that don't have -- in parts of the world that don't have standards implementing standards. And eventually, I think you'll see more of these standards be adopted as codes, although that takes more time. But I would expect that standards will be followed and upgraded and probably leaning towards the higher end of each of these standards, particularly in Western Europe, the U.S., Japan, China, most of the developed parts of the world.

Operator

Your next question comes from Steve Volkmann with Jefferies.

Stephen Edward Volkmann - *Jefferies LLC, Research Division - Equity Analyst*

I kind of want to go back to Jeff's question a little bit. I mean you stressed the 25% incrementals over time. But as we think about all the things you're doing on service, new product acquisitions, all those seem like higher-margin opportunities and then you have the cost saves. So I guess

I'm trying to figure out, above the 25% incrementals, do you just kind of automatically reinvest the upside, and that drives faster growth over time? Or is there an opportunity over time to deliver higher incrementals?

Christopher J. Kuehn - *Trane Technologies plc - Senior VP & CFO*

Yes. Great question. And absolutely, there's no sort of one that we would expect to be above and below the basis what needs to be done in the long haul for the business, investment in the business for the long haul. So there's not a meter on that, right? If we get 27% incremental margins, we're not going to immediately pivot toward reinvestment. That's not the point. We really want to run the whole P&L on the balance sheet holistically as a system.

But we just want to give investors confidence that we can outgrow the market, we can outgrow our competitors and we can do that at least at a 25% incremental going forward. So I expect there's years that we'll do better than that. And potentially, there's years that we could do a little bit less than that, as we saw with the tariff increases a couple of years ago. That was a difficult situation for all companies at that time to react to. But there's no hard, fast sort of pivot binary points that we stop one and start the other. We think we can do both at the same time.

Stephen Edward Volkmann - *Jefferies LLC, Research Division - Equity Analyst*

Got it. Okay. And then a slightly different topic, but you guys have a little bit more of a hybrid distribution model than some others. I'm just curious how you think about that over time. Is it more company-owned or less company-owned? Just any thoughts on that direction.

Michael W. Lamach - *Trane Technologies plc - Chairman & CEO*

Well, just to be clear, commercial HVAC, I would say we've got a direct model. Thermo King, we're 100% indirect model. We don't have any reason to change that. We want to -- we think the Thermo King dealers do a great job. That's our model. And we think that the HVAC commercial business being direct, that's our model. The only place we have a hybrid model is in the residential area, which is about 50-50.

And the rationale there is, look, we're after the best combination of market share and margin improvement. And if a tenant does a better job there, we're going to go with that. And if we can do a better job in a given location, we're going to go with that. And occasionally, we'll make a change. We'll move independent to company-owned or we'll move from company-owned to an independent. It's not that common, but we do on occasion do that. But our motives there are strictly around market share and margin expansion in our residential business only.

Operator

Your next question comes from Chris Dankert with Longbow Research.

Christopher M. Dankert - *Longbow Research LLC - Research Analyst*

I guess could you break down the opportunity for SaaS monitoring controls, automation versus kind of more traditional equipment? And should we think about these connected solutions growing at kind of a double-digit pace in core equipment more GDP, GDP plus? Or is that not the right way to think about it?

Michael W. Lamach - *Trane Technologies plc - Chairman & CEO*

Well, the connected building business is growing at an incredible growth rate. I've lost track of that rate. It was almost approaching 100% over the last 3 years. I mean it was coming off a small base but dramatically increasing. I would expect that to accelerate. But the way we think about monetizing that is across a number of areas of the value chain, right? It's a more productive way for us to be able to deliver service. It's a more profitable way for us to sell service because we could capture the higher margin. It's a competitive advantage in that we can maybe do something that a competitor can't by feeling strongly that we can both model a building and keep the building operating through a model. And that's [what a lot] to a customer who wants to make sure that from an energy perspective and this cost of energy is maintaining best-in-class or at least targeted energy efficiency.

That will increase their air quality as customers look to be relatively sure that the buildings have seen the amount of air changes per hour the building needs to see and that filters don't need to be changed, all that can be done remotely, right? Or even occupancy, we're able to change the profile of rooms or floors or areas of the building just based on occupancy of that floor. We can change the profile of how the system is operating. So those are all the ways that you monetize that. So there's no way for anybody to sort of put that into budget -- into buckets. And with all respect to my friend Chris over here, we don't want to pay finance people to do that.

Christopher M. Dankert - *Longbow Research LLC - Research Analyst*

No. Fair. And then not to put too fine a point on it but just to summarize, I suppose, you're saying that the trend in work from home is going to be really swamped by this ongoing megatrend of urbanization and kind of the change in workforce. Is that the right way to think about it?

Michael W. Lamach - *Trane Technologies plc - Chairman & CEO*

Yes. First of all, I think work from home is going to work with some job sometimes, not everybody. I think buildings will be less densely occupied and then got to norm. And I think urbanization works at all. And urbanization is driving a lot of the problems that we see in the world in our greenhouse gas emissions, be it through HVAC in buildings, transport refrigeration, full chain loss, et cetera. So no, you're right on both accounts.

Operator

There are no further questions at this time. I will now turn the call back over to Zac Nagle for closing remarks.

Zachary A. Nagle - *Trane Technologies plc - VP of IR*

Once again, I'd like to thank everyone for joining the call today. As always, Shane and I will be available to take any questions that you have today or in the coming days. I'd also like -- I also have a request. We have a survey link in the appendix of the presentation on Slide 51. If you could take a couple of minutes and fill that out, we truly appreciate it. And lastly, if we don't chat sooner, I'd like to wish everyone a very happy and healthy holiday season. Thank you.

Operator

Ladies and gentlemen, this concludes today's conference call. Thank you for participating. You may now disconnect.
