

Global Industrials Group

Building Technology and Automation

Market Primer Summer 2023



Houlihan Lokey's Dedicated Coverage of the Building Technology and Automation Sector

Dear Clients and Friends.

Houlihan Lokey is pleased to present its Building Technology and Automation primer for summer 2023.

We have included prevalent sector trends and industry insights to help you stay ahead in our dynamic and constantly evolving industry.

We hope you find this update to be informative and that it serves as a valuable resource in staying abreast of the market. If there is additional content you would find useful for future updates, please don't hesitate to call or email us with your suggestions.

We look forward to staying in touch with you.

Regards,

Global Industrials Coverage



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Selected Building Technology and Automation Transactions

























^{*}Selected transactions were executed by Houlihan Lokey professionals while at other firms acquired by Houlihan Lokey or by professionals from a Houlihan Lokey joint venture company.

About Our Firm



Houlihan Lokey's Industrials Group combines extensive industry relationships with substantial experience to offer a broad array of M&A advisory, capital raising, restructuring, and financial and valuation advisory services to the industrials industry. Based on the number of transactions and according to data provided by Refinitiv, Houlihan Lokey was ranked the No. 1 M&A advisor for all U.S. industrials transactions in 2022, maintaining its consistent ranking for the past eight years.*

*Source: Refinitiv (previously The	mson Reuters). 2017	7 ranking excludes	transactions under
\$5 million.			

2022 M&A Advisory Rankings All U.S. Industrials Transactions									
	Deals								
1	Houlihan Lokey	35							
2	Lincoln International	33							
3	Goldman Sachs & Co	26							
3	Stout	26							
5	Benchmark International	25							
5	Jefferies LLC	25							
Soul	rce: Refinitiv. Excludes accounting firms and brokers.								

Learn More About Our Industrials Group Industry Coverage

Key Facts and Figures

160 +

Dedicated Industrials Group bankers

75

Completed Industrials Group M&A/ private placement transactions in CY22 \$2B

In disclosed financing deals in CY22



36
LOCATIONS
WORLDWIDE

~2,000

TOTAL FINANCIAL PROFESSIONALS

313

MANAGING DIRECTORS(1) 2,000+

ANNUALLY

\$6B

MARKET CAPITALIZATION(2)

\$1.8B

REVENUE(3)

Our Ranking by Service

Corporate Finance

2022 M&A Advisory Rankings Global Transactions Under \$1 Billion											
1	1 Houlihan Lokey 381										
	,										
2	Rothschild & Co	369									
3	JP Morgan	217									
4	Lazard	206									
5	5 Goldman Sachs & Co 203										
Sour	ce: Refinitiv. Excludes accounting firms and brokers.										

No. 1 Global M&A Advisor for Transactions Under \$1 Billion

Leading Capital Markets Advisor

Financial Restructuring

2022 Global Distressed Debt & Bankruptcy Restructuring Rankings												
	Advisor Deals											
1	Houlihan Lokey	58										
2	PJT Partners Inc	30										
3	Lazard	29										
4	Rothschild & Co	25										
5	5 Moelis & Co 21											
Soul	rce: Refinitiv.											

No. 1 Global Restructuring Advisor

1,500+ Transactions Completed Valued at More Than \$3.0 Trillion Collectively

Financial and Valuation Advisory

	98 to 2022 Global M&A Fairness visory Rankings	
	Advisor	Deals
1	Houlihan Lokey	1,232
2	JP Morgan	1,030
3	Duff & Phelps, A Kroll Business	938
4	Morgan Stanley	725
5	BofA Securities Inc	710
Soul	rce: Refinitiv. Announced or completed transactions.	

No. 1 Global M&A Fairness Opinion Advisor Over the Past 25 Years

1,000+ Annual Valuation Engagements

Building Technology and Automation Market Overview

Key Question

Takeaway

What Is It?

- The building technology and automation market encompasses a wide range of systems and devices that are designed to make commercial buildings more energy efficient, secure, and convenient
- Houlihan Lokey defines this TAM to include building services, HVAC equipment, intelligent building solutions, automation controls, security, and fire and life safety systems

\$328B

~6.5%

2021–2030E CAGR

Why Does It Matter?

- Growing emphasis on government sustainability initiatives and energy savings requirements
- Smart building technology reduces energy usage and costs by optimizing HVAC, lighting, and other systems based on occupancy, weather conditions, and other factors
- Smart building technology also enhances occupant comfort, productivity, and safety, ultimately creating more efficient and profitable buildings through data analytics, uniformed control systems, and automation

40%

of GHG From Buildings

\$80B

Market for the IoT in Smart Buildings

What Trends Are We Seeing?

Increased
Building
Complexity and
Greater
Emphasis
on Data

Growing
Awareness for
Safe and Secure
Workplaces

Focus on Sustainability

How Does It Impact Decision-Makers?

- Valuations remain high in the sector, particularly companies that are focused on sustainability and energy-efficiency solutions due to the robust demand
- The building technology and automation market is also highly fragmented, with key conglomerates acquiring smaller players in the space to expand their offerings and increase their market position

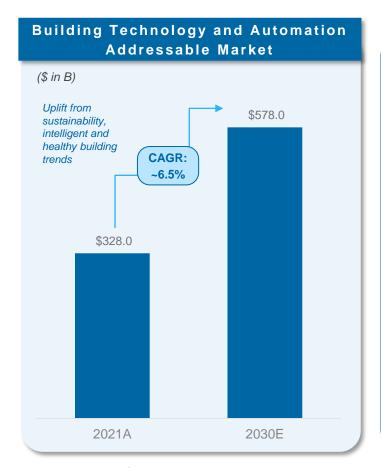
Invested in Startup Smart Building Companies

Since 2015

What Makes the Sector Attractive for Buyers?

- ✓ Growing Market: The building technology and automation market is expected to continue growing in the coming years as companies and building owners seek to improve energy efficiency, enhance building security and safety, and optimize building operations
- ✓ Consolidation Opportunities: Highly fragmented, with many small- and medium-sized players operating in different segments ripe for a roll-up/buy-and-build strategy to combine automation, service, and controls offerings
- Recurring Revenue: Several companies in the market are shifting from selling products to offering services (particularly in the HVAC systems market), driving recurring revenue for industry operators

Building Technology and Automation Sector Today



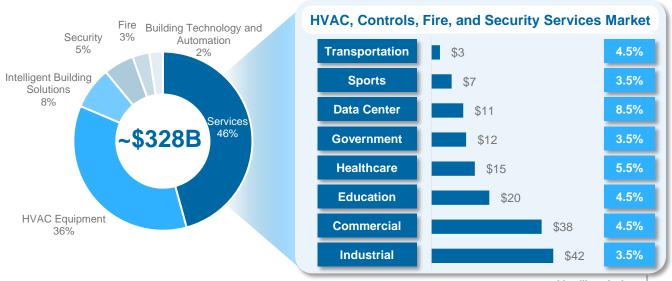
Attractive Market With Significant Upside for Growth

- Houlihan Lokey defines the building technology and automation TAM to include building services, HVAC/healthy air equipment, intelligent building solutions, security, fire, and building automation controls solutions
- The building technology and automation market is forecasted to grow at ~6.5%
 CAGR through the next decade, driven by:
 - Smart buildings and the growing need for increasingly integrated, complex, and data-driven controls and technology
 - Focus on operating healthier buildings, including uptake in fire and security infrastructure investment
 - Emphasis on decarbonization and favorable government initiatives impacting market uptake

Market Overview

(\$ in B; CAGRs in 2021-2024)

Large and fragmented market is poised for growth through a focus on decarbonization and healthy building investment over the next decade

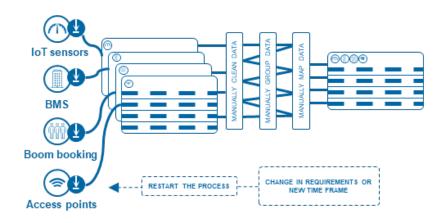


Key Trend #1: Demand for increasingly integrated, complex, and data-driven controls and technology in smart buildings (I/III)

Convergence of IoT and automation controls technology has created a significant opportunity for value creation and a bona fide demand in the marketplace

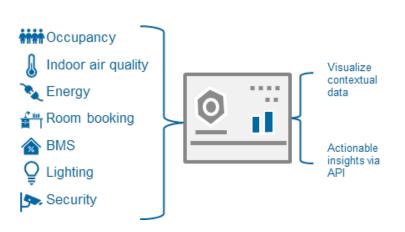
- Historically, building data has been siloed and difficult to aggregate the multiple data points from security, access control, energy usage, etc., in a modular and integrated fashion
- Now, customers are demanding smart building software that consolidates, collects, and analyzes various disparate data points in order to visualize contextual data and drive actionable insights to improve building efficiency

Benefits of Integrated IoT Building Software Stacks



Before: Data Silos

- Disparate Data and Lack of Comprehensive Insight
- Time-Consuming Data Analytics Process
- Limited Connectivity and Integration Tools



After: All Building Data Consolidated

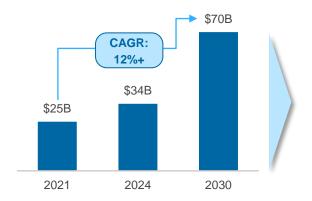
- ✓ Centralized Interface
- ✓ Single Pane of Glass
- ✓ Actionable Insights

Source: Memoori. Houlihan Lokey

Key Trend #1: Demand for increasingly integrated, complex, and data-driven controls and technology in smart buildings (I/III)

Accelerating Technology Adoption Drives Market Uptick

Intelligent Buildings Solutions Market



How Is This Being Achieved?



Market by New Technologies



Edge and Communication Devices



Optimized method of cloud computing systems in which data is performed at the "edge" of the network; edge devices help transmit data to the central network at higher speeds with heightened privacy and reliability



Energy and Operational Management



Energy tracking and optimization software for thermal, water, electrical, storage, and carbon; allows building owners to optimize the performance of buildings to meet the needs of occupants



Integration Software and Services



Design and implementation services that connect application functionality and data with existing or planned IT building infrastructure



Cloud/loT-Based Remote Monitoring and Diagnostics



IoT-based remote monitoring gives businesses the tools to understand the condition of equipment and its components with sensors to transmit precise data back to the cloud; this allows companies to increase efficiency and perform any predictive maintenance on equipment



Space Optimization and Analytics



Space optimization technology helps manage clean air, energy, sustainability, comfort, and costs for building owners and managers through continuous data ingestion and monitoring



Occupant Experiential / Value-Added Applications



Occupant experience technology allows owners and tenants to receive feedback on occupant behavior and space utilization patterns to improve the comfort, convenience, and collaboration of knowledge workers

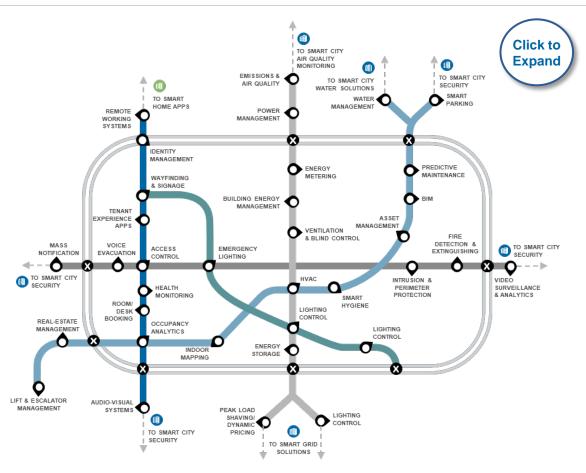
~\$25B

26%

21%

Key Trend #1: Demand for increasingly integrated, complex, and data-driven controls and technology in smart buildings (I/III)

IoT in Smart Commercial Buildings



Key to Lines

- The Business Enterprise
- User Experience
- Security
- Energy
- Lighting and Signage
- Facilities

Key to Symbols

- Technology/Service Type
- Data Exchange
- Smart Home Data Interchange
- Smart City Data Interchange

Technology stacks within commercial buildings are complex—bona fide demand exists to consolidate and integrate all these disparate systems to drive building efficiency

Source: Memoori. Houlihan Lokey

Key Trend #2: Heightened demand for fire, life, safety, and security systems to promote "healthy" buildings

Post-pandemic focus on operating "healthy" buildings will require significant investment in both the fire life and safety (FLS) and security products verticals

Megatrends Driving Sustainable Growth







\$6B+

90%+

\$12B

\$80B

Global under-protected residential fire safety market within five years

Building occupants believe touchless access has a significant impact on the health and safety of a building In building damages due to fires per year in the U.S. alone

Global market for the IoT in smart commercial buildings



\$18B

~7%

Security Products Market

CAGR 2021–2026 (1)

Security Trends

- Al and cloud-based product shift
- Heighted demand for cybersecurity offering to combat cyber attacks
- Rise in crime, terrorism, and infrastructure challenges
- Wireless networking and edge services integration

\$10B

Fire Products Market ~4%

CAGR 2022–2030 (2)

FLS Trends

- Increased building activities in highgrowth verticals (i.e., data centers)
 requiring fire systems or R&R of existing infrastructure and implementation of new technologies
- Stringent and growing fire safety regulatory compliance

Sources: Industry participant investor presentations, Memoori, Grandview Research.

- (1) Representative of global security products market growth (outside of commercial buildings).
- (2) Representative of total U.S. fire protection system market.

Key Trend #3: HVAC / healthy air optimization and sustainability focus (I/II)

As governments and companies increasingly focus on decarbonization/ESG initiatives, buildings play a critical role in reducing greenhouse emissions

- Buildings account for nearly 40% of greenhouse gas emissions; HVAC optimization will play a critical role for building managers to decrease energy costs while also hitting sustainability targets
- Increased demand/investment in the space for software and low-emission heating equipment to maximize building efficiency

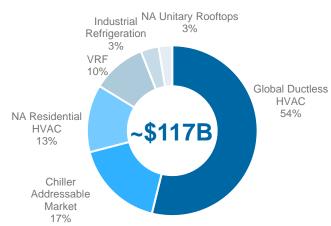
50%+

of S&P 500 companies have committed to CO₂ emissions targets

\$240B

Market by 2035 for decarbonization solutions with HVAC as key technology

HVAC Market by Segment



Selected Laws Driving Action

NYC Local Law 97

Germany and
EU Requires an 80% reduction in emissions intensity over the next 30 years for large multifamily and commercial buildings, with annual fines beginning in 2024 and increasing in 2030 for exceeding emissions caps

■ The country's coalition agreement states that by 2025, all newly installed heating systems must operate with at least 65% renewable energy

U.S. Government U.S. government plans to cut greenhouse gas emissions in half by 2030

Benefits of HVAC Optimization









Key Trend #3: HVAC / healthy air optimization and sustainability focus (I/II)

Key Technology in Space: IoT-Connected Heat Pumps

HVAC Headwinds

- HVAC incurs high energy costs due to extensive usage
- HVAC generates the bulk of GHG emissions for buildings (~40%)

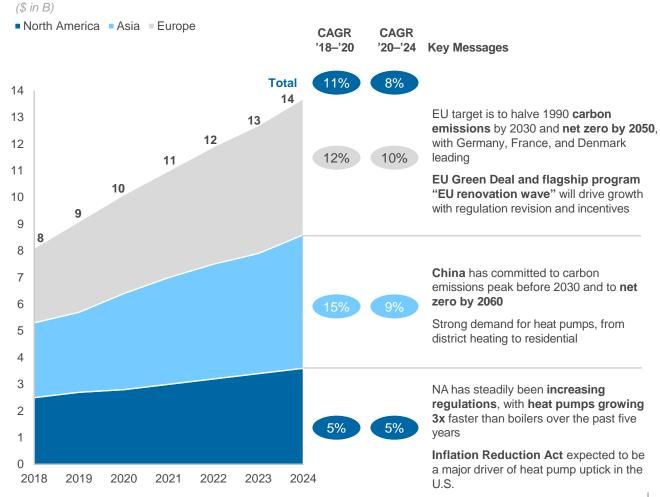
Heat Pump Advantages

- Heat pumps drastically improve energy efficiency and reduce costs and emissions
- ✓ IoT sensors and roomby-room temperature control augment positive spend and traction further

Opportunities

- 1 Heat pumps are currently only 35% of new heating unit sales but are estimated to grow to 90% by 2050
- 2 Global implementation of heat pumps have the potential to reduce GHG emissions by 3 gigatons per year

Global Heat Pump Market



Carrier Announces Plans to Divest F&S Division

Selected Press Commentary

Recent News Articles



◆ WSJ NEWS EXCLUSIVE | BUSINESS

Carrier Plots Separation of Fire Unit

Air-conditioning company aims to sell or spin off Fire & Security business

By Laura Cooper Follow and Lauren Thomas Follow

Updated April 11, 2023 11:35 am ET





DOW JONES

Market-Moving News: Carrier Aims to Sell or Spin Off Fire & Security Business

April 14, 202



Carrier Global: Talk of Fire and Security Sale Swirls









Equity Research Commentary

"Relevant F&S sale comps, including Stanley's Security business and Chubb, point to an EV/EBITDA multiple in the midteens. The resultant value of F&S using a 15x EV/EBITDA multiple is ~\$9.5 billion, a relatively large price tag, which could limit the number of suitors with enough balance sheet capacity to fund a deal (particularly given private equity tends to be active in this space and financing tightness/high interest rates are now limiting PE transaction activity)."

- Deutsche Bank, April 13, 2023

"We believe that investors would applaud a divestiture of Fire & Security, as it would position Carrier as a more focused HVAC pure-play. Overall, we believe this divestiture makes sense, as roughly 75% of Fire & Security revenues are in products, many of which are commoditized, in our view. By our rough back-of-the-envelope estimates, a sale would be modestly dilutive assuming a 13.8x EBITDA multiple, which is a roughly 20% takeout premium to our SOP for the Fire & Security segment, a 23% tax rate, and the proceeds were used on buybacks. For a spinoff, the business could trade at 11.5x EV/EBITDA and be 15%–17% dilutive, assuming roughly 2.0x leverage.

- RBC Capital Markets, April 11, 2023

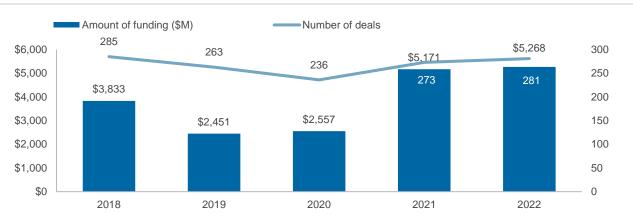
"Investors argue a potential breakup would drive a higher valuation multiple for the HVAC business, a playbook that worked successfully for Trane Technologies following the Ingersoll Rand spin-off. Fire & Security peers currently trade at 9.1x 2023 EV/EBITDA. To be clear, potential AFFF liability within Fire & Security creates uncertainty around valuation. However, Carrier's exposure is fundamentally different from 3M and other fluoro-chemistry manufacturers."

- BofA Global Research, April 10, 2023

Smart Building Investment Trends

Since 2015, total capital invested in startups in the global smart building space amounted to more than \$31 billion. In the past two years, it reached unprecedented levels, with \$5.9 billion being invested in 2022 alone

Equity Funding Activity



Representative Investments and Transactions

Carrier Plots Separation of Fire Unit

Carrier Global Corp. is working on a plan to sell or spin off its Fire & Security business segment, which accounts for about 17% of the air-conditioning company's sales, according to people familiar with the matter

Schneider Electric Investing €40 Million in New Smart Factory in Hungary

Schneider Electric, the leader in the digital transformation of energy management and industrial automation, broke ground on its new smart factory in Dunavecse, Hungary

Honeywell Invests in Energy-as-a-Service Market Leader Redaptive to Drive Private Sector Energy Contracting

Honeywell (NASDAQ:HON) today announced a strategic investment in Redaptive, which will accelerate a collaboration to bring energy-as-a-service capabilities to private sector-owned commercial and industrial buildings

JLL Acquires Proptech Company Hank

The AI-powered platform will help JLL clients operate more sustainably with improved energy efficiency, air quality, and tenant comfort

Siemens Agrees to Buy U.S. Digital-Twin Software From EcoDomus

Siemens has signed a deal to acquire the digital-twin software from U.S.-based smart-building design company EcoDomus

NRG Acquires Vivint

NRG acquires Vivint Smart Home for \$2.8 billion; the acquisition furthers NRG's consumer-focused growth strategy and expands the combined companies' market reach

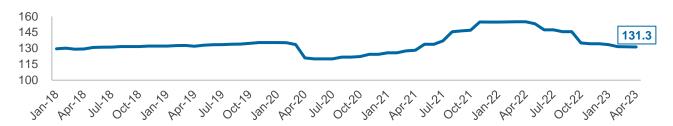
Sources: Memoori, CB Insights.

Key Subsegment Trends: Commercial Real Estate

The outlook for the commercial real estate market remains mixed, as macro headwinds, a general pullback in broader investments, and the impact of rising rates on real estate exposed the sector

1 Commercial Property Prices Down From Last Year's Rebound

Commercial real estate has fallen by 15% since property prices peaked a year ago
 Commercial Property Price Index as of 05/4/2023⁽¹⁾



2 Office Demand Slows Beyond Typical Seasonality

 Q1 negative net absorption of 16.5 million square feet marked the weakest quarter for office demand in two years

U.S. Net Absorption and Completions as of Q1 2023 (s.f. in M) and Vacancy Rates (%)(2)



3 Commercial Real Estate Investment Volume Continues to Fall Through Q1 2023

 High interest rates, tight credit conditions, and a worsening economic outlook were largely the main factors driving decreases in investment volume in 2022 and early 2023⁽²⁾



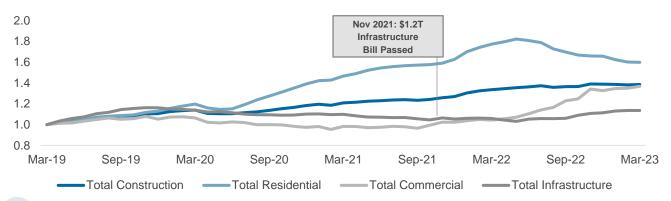
Key Subsegment Trends: Construction

Construction technology adoption, while early, continues to expand and is drawing significant investor/strategic capital

1 Construction Is a Large Portion of Global Economic Activity and Continues to Grow

- Construction spend is projected to keep growing, despite macroeconomic factors
- Certain end markets, like infrastructure, will be spurred by government spending initiatives

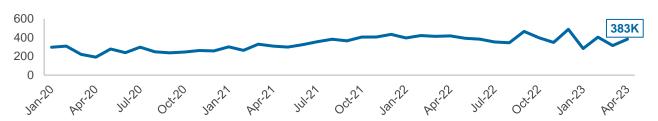
U.S. Construction Industry Spending as of March 2023 (Index: Mar. 2019 = 1)(1)



2 Construction Hiring/Job Openings Continue to Outpace Labor Supply

■ This is driving the need for greater technology adoption; job openings have grown by ~29% since January 2020

Job Openings in Construction as of 4/1/23 (K)⁽¹⁾



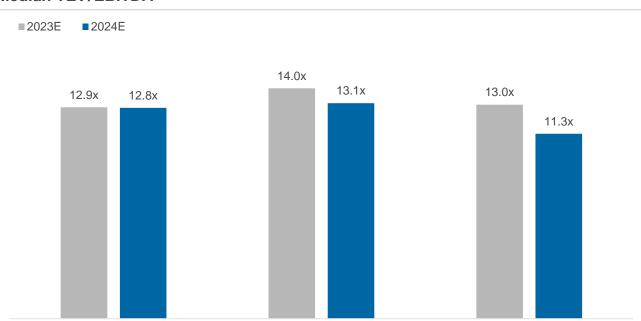
3 Technology Solutions Will Create Significant ROI in the Construction Sector⁽²⁾

- 1 Reducing project costs
- 2 A Eliminating/lowering errors in all stages of the construction process
- Improving efficiency, accelerating project timelines
- Increasing ESG compliance

 Increasing cost savings overall from applying tech to construction projects that are \$\$ \$500B\$

Public Markets Overview

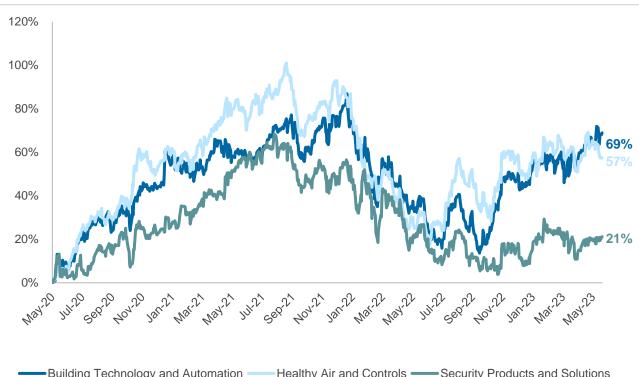
Median TEV/EBITDA



Healthy Air and Controls

Three-Year Indexed Stock Price Performance

Building Technology and Automation



Building Technology and Automation ——Healthy Air and Controls ——Security Products and Solutions

Security Products and Solutions

Public Comparables

Building Technology and Automation

Building Technology and Automation

(\$ in millions, except per-share prices		LTM				TEV /						
Company Name	Stock Price	% of 52 Week High	Equity Value	Enterprise Value	Revenue	EBITDA	EBITDA Margin	Net Debt / EBITDA	LTM Revenue	NTM Revenue	LTM EBITDA	NTM EBITDA
Siemens Aktiengesellschaft	\$166.96	97.3%	\$132,325	\$181,395	\$80,919	\$11,884	14.7%	3.7x	2.2x	2.1x	15.3x	11.2x
Honeywell International Inc.	\$194.55	88.0%	\$129,460	\$142,934	\$35,954	\$8,382	23.3%	1.5x	4.0x	3.8x	17.1x	14.9x
Schneider Electric S.E.	\$175.42	98.6%	\$98,082	\$111,927	\$36,423	\$6,804	18.7%	1.9x	3.1x	2.9x	16.5x	14.2x
Johnson Controls International plc	\$61.68	88.6%	\$42,319	\$53,352	\$26,093	\$3,323	12.7%	3.0x	2.0x	1.9x	16.1x	12.8x
Carrier Global Corporation	\$41.75	84.9%	\$34,854	\$41,197	\$21,040	\$2,880	13.7%	2.1x	2.0x	1.8x	14.3x	11.3x
SmartRent, Inc.	\$3.55	53.9%	\$708	\$504	\$196	(\$72)	N/M	N/M	2.6x	2.0x	N/M	N/M
Mean: Median:							16.6% 14.7%	2.5x 2.1x	2.6x 2.4x	2.4x 2.1x	15.8x 16.1x	12.9x 12.8x

Healthy Air and Controls

(\$ in millions, except per-share prices)					LTM				TEV /				
Company Name	Stock Price	% of 52 Week High	Equity Value	Enterprise Value	Revenue	EBITDA	EBITDA Margin	Net Debt / EBITDA	LTM Revenue	NTM Revenue	LTM EBITDA	NTM EBITDA	
Daikin Industries,Ltd.	\$191.10	95.2%	\$55,939	\$58,165	\$28,497	\$4,003	14.0%	0.5x	2.0x	2.0x	14.5x	13.6x	
Trane Technologies plc	\$166.58	84.9%	\$37,989	\$42,144	\$16,302	\$2,731	16.8%	1.5x	2.6x	2.4x	15.4x	13.8x	
Carrier Global Corporation	\$41.75	84.9%	\$34,854	\$41,197	\$21,040	\$2,880	13.7%	2.1x	2.0x	1.8x	14.3x	11.3x	
Lennox International Inc.	\$280.97	95.3%	\$9,975	\$11,818	\$4,754	\$757	15.9%	2.4x	2.5x	2.4x	15.6x	14.1x	
Mean: Median:							15.1% 15.0%	1.6x 1.8x	2.3x 2.3x	2.2x 2.2x	15.0x 15.0x	13.2x 13.7x	

Security Products and Solutions

(\$ in millions, except per-share prices)						LTM				TEV /				
Company Name	Stock Price	% of 52 Week High	Equity Value	Enterprise Value	Revenue	EBITDA	EBITDA Margin	Net Debt / EBITDA	LTM Revenue	NTM Revenue	LTM EBITDA	NTM EBITDA		
Motorola Solutions, Inc.	\$285.03	95.2%	\$47,804	\$53,318	\$9,391	\$2,634	28.0%	2.1x	5.7x	5.4x	20.2x	18.7x		
Canon Inc.	\$25.06	98.6%	\$25,454	\$27,666	\$29,511	\$4,362	14.8%	0.1x	0.9x	0.9x	6.3x	6.3x		
ASSA ABLOY AB (publ)	\$22.44	90.8%	\$24,931	\$27,488	\$11,611	\$2,001	17.2%	1.3x	2.4x	2.2x	13.7x	11.2x		
Delta Electronics, Inc.	\$10.21	96.9%	\$26,514	\$27,106	\$12,833	\$1,988	15.5%	(0.4x)	2.1x	1.9x	13.6x	12.4x		
Allegion plc	\$107.08	86.7%	\$9,417	\$11,387	\$3,471	\$771	22.2%	2.6x	3.3x	3.1x	14.8x	13.0x		
dormakaba Holding AG	\$456.92	88.5%	\$1,909	\$2,722	\$3,094	\$338	10.9%	2.4x	0.9x	0.9x	8.0x	6.7x		
Identiv, Inc.	\$7.36	43.3%	\$169	\$153	\$114	\$1	0.7%	(19.6x)	1.3x	1.2x	N/M	27.8x		
Mean:							15.6%	(1.6x)	2.4x	2.2x	12.8x	13.7x		
Median:							15.5%	1.3x	2.1x	1.9x	13.7x	12.4x		

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