VANGUARD
Industrial Holdings

Tailored investments in aerospace, defense, and robotics manufacturing

ACQUISITION CASE STUDY

TRONTECH INC.

A Printed Circuit Board Assembler in Aerospace and Medical

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About Vanguard Industrial Holdings

Vanguard Industrial Holdings is building a portfolio of synergistic companies in the aerospace, defense, and robotics sectors. With the aim of serving these growing markets, we're searching for manufacturing businesses in the lower middle market. Our conservative 10-year milestone is to reach a total enterprise value of $468 million, with numerous exits being explored, including sale of the portfolio to a private equity firm or an IPO.

Since the Fall of 2022—in just 15 months—we've sourced 1,380 deals, evaluated 280 businesses, conducted 6 site visits, and submitted 4 LOIs. We have built relationships with universities and developed a culture of growth and education that develops young talent into high performers. We also continue to build our board, and have architected a deal flow engine to secure off-market deals at better valuations for improved ROI.

We are presently 100% self-funded, with 100% of our net worth vested in this venture.

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The Acquisition Strategy at Vanguard Industrial Holdings

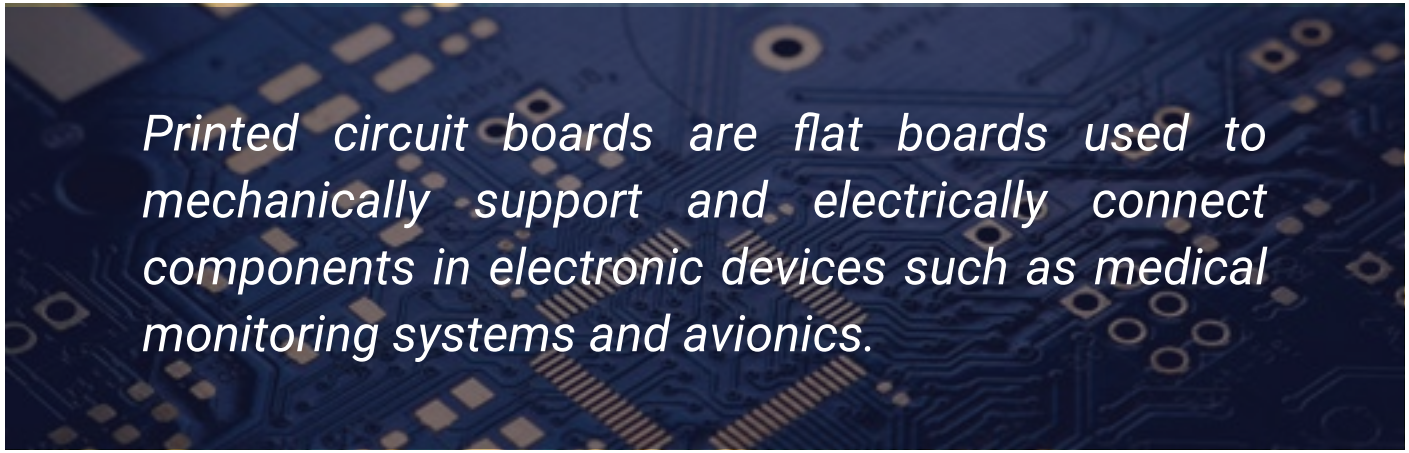
Vanguard Industrial Holdings is building a portfolio of companies revolving around the manufacturing industry, serving the aerospace and defense sectors and end markets.

As part of our assessment and selection process, we look at key qualities as well as financial metrics.

Stable Financial Performance	• $1m–10m EBITDA • Profitability in the last 3–5 years • Healthy margins appropriate for its size and sector
End Market Capability	The counter-cyclicality of aerospace and defense are key to our long-term stability. We're also taking advantage of the rising tide in robotics.
Strategic Advantage	We look for intellectual property, technological bottlenecks, and sole supplier status.
Culture Fit	Assessing the attitudes and ways of doing work is crucial to successful integration with the rest of our portfolio.

OVERVIEW OF TRONTECH

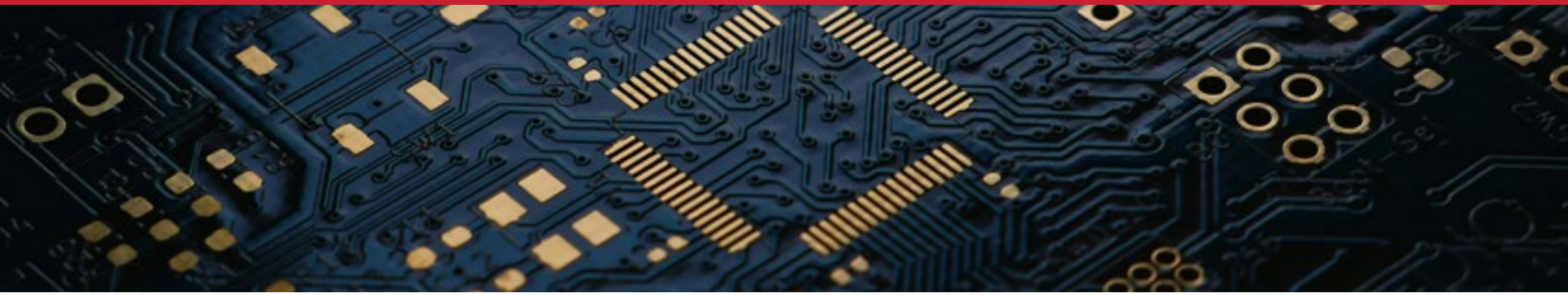
Trontech is one of the companies Vanguard Industrial Holdings pursued. The contract manufacturer specializes in printed circuit board assembly (PCBA) and also provides engineering and testing services, making it a convenient one-stop shop for customers. Over the decades, Trontech has built a sterling reputation for efficient, systems-driven operations, strong customer retention, and high-quality work. The company is family-owned.



$36m
Revenue
2022

$10m
EBITDA

27.7%
EBITDA
Margin

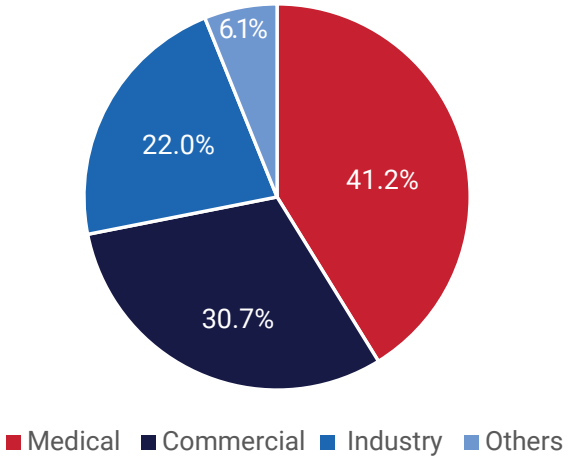


Key Services and Customers

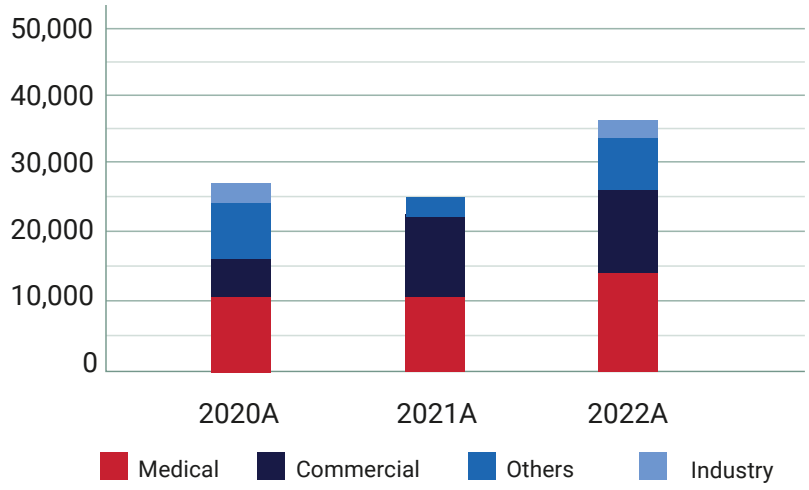
Trontech's key business activities revolve around providing electronics manufacturing services (EMS) to industries that require high-quality PCB assemblies. The company orders supplies based on engineering designs that are either developed in-house or provided by the customer and then assembles them into the needed product.

Their focus customers include medical and commercial electronics, with a smaller percentage of customers in automotive, aerospace, and industrial.

Revenue% by Industry 2022A*



Revenue% by Industry 2020 -2022A*



Specific Services and Products

SMT Assembly

For both prototyping and production, including fine pitch components such as BGA, microBGA, and QFN, and RoHS compliance.

Thru-Hole Assembly

Featuring automated insertion and tape & reel services for mass production.

Box Build Assembly

Includes electro-mechanical assembly, encapsulation & coating, and system integration.

Engineering Services

Offers a live, web-based paperless factory, PCB design & layout, and DFM.

Material Management

Implements Kanban, JIT, Dock-To-Stock, global sourcing, vendor-managed inventory, and EOL component management.

Testing Services

For both prototyping and production, including fine pitch components such as BGA, microBGA, and QFN, and RoHS compliance.

Quality Systems

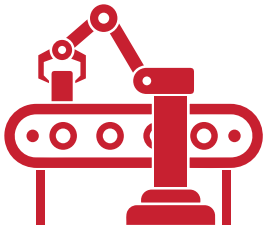
Trontech is ISO 9001, ISO 13485, and AS9100 certified and ITAR compliant, with J-STD & IPC certified operators, and uses automated 3-D solder paste inspection.

Position in the Value Chain: Midstream

UPSTREAM	MIDSTREAM	DOWNSTREAM
Production and supplier of components	Trontech	Consumers of Trontech's goods

Design and Engineering

Assembly



Consumers
Aerospace, Defense, Medical

Component Suppliers

Testing

Suppliers and Consumer

Trontech Inc.

SWOT ANALYSIS

STRENGTHS

- Healthy and robust financial status
- Recognized and well-established brand in the market for high-quality products
- Operational efficiency
- Favorable location
- Skilled workforce
- Certifications for medical and AS manufacturing and ITAR compliant (as first step certificate for defense sector manufacturing)
- Physical capacity to increase production
- A one-stop shop that does design, test, assembly, and QC for PCBA
- Offloaded back-office operation to India that helps to increase the efficiency
- Asset heavy (owns real estate, equipment, and machinery)
- On-time delivery of orders even during the pandemic (shipment efficiency)

WEAKNESSES

- Moderate concentration of customers, primarily medical end market
- Offloaded back-office operations to India should be sustained and contracted after the transition or replaced by an alternative option.
- Reliance on the owner and critical employees; however, Trontech is a family business, and the next generation would be incentivized to stay on and participate in the company's growth.
- The company has performed well during the pandemic and has reliable supplier relationships. However, we would investigate whether the company has updated its supply chain and inventory management strategy to prepare for future disruptions.
- The present R&D capabilities and initiatives of the company are not very clear.

OPPORTUNITIES

- Favorable macroeconomic conditions: increased spending and demand in the defense sector
- Provide high-volume assembly to low-volume/high-mix manufacturers in our portfolio
- Scale up production: Opportunities offered to the semiconductor industry by CHIPs Act

THREATS

- Several local competitors
- Rapid technological iterations in the PCB market may threaten Trontech's comparative advantage in production.
- Cost of acquiring new customers
- Supply chain and labor disruptions

ABOUT THE INDUSTRY

What is Printed Circuit Board Assembly (PCBA)?

The PCBA industry refers to the Printed Circuit Board Assembly industry, a segment of the broader electronics manufacturing sector. This industry involves the process of soldering or assembly of electronic components onto printed circuit boards (PCBs) to create a functional printed circuit assembly (PCA), or what is commonly known as a printed circuit board assembly (PCBA). PCBs are the foundational building blocks for most modern electronic devices. They are composed of insulating materials with conductive pathways etched or printed onto them to connect components, such as resistors, capacitors, and integrated circuits (ICs). These are the various parts that will be attached to the PCB, including active components like transistors and ICs, as well as passive components like resistors and capacitors.

The assembly of PCBs can involve several techniques:

- **Surface-Mount Technology (SMT):** Components are mounted directly onto the surface of PCBs. SMT has become the dominant assembly technique due to its efficiency and ability to accommodate small components.
- **Through-Hole Technology (THT):** Component leads are inserted into drilled holes on the PCB and soldered to pads on the opposite side. This technique is often used for components that require stronger physical connections to the board.
- **Mixed Technology:** Combining SMT and THT on the identical PCB for different components.

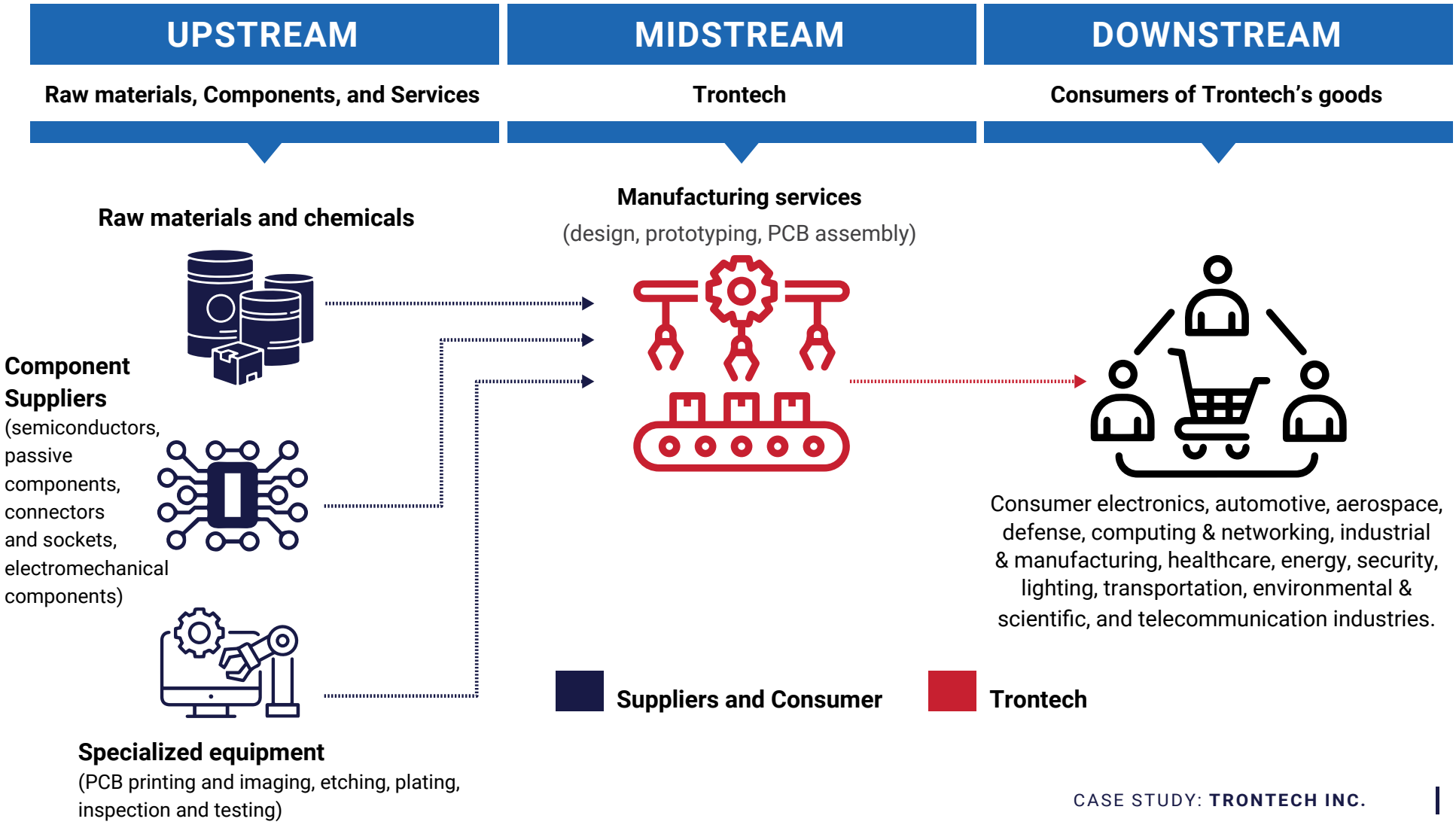
Soldering is the process of joining components to the PCB using a metal alloy, typically a combination of tin and lead or lead-free substitutes. After assembly, PCBAs are typically subjected to various tests to ensure functionality and reliability. These include automated optical inspection (AOI), in-circuit testing (ICT), functional testing, and environmental stress testing.

The PCBA industry serves various end markets, including consumer electronics, automotive, aerospace, defense, healthcare, telecommunications, and industrial applications. Companies in the PCBA industry may offer services that range from contract manufacturing, providing only the assembly services, to complete turnkey solutions, where they handle the entire manufacturing process from design and prototyping to assembly and testing.

Given the rapid pace of technological advancement and the increasing complexity of electronic devices, the PCBA industry is critical to the global supply chain for electronic products. It is a highly competitive field, with constant pressure to minimize costs, increase efficiency, and maintain high quality and reliability standards.

Upstream and Downstream Sectors Related to PCB Manufacturing

Upstream sectors of Printed Circuit Board (PCB) manufacturing are those industries that provide the raw materials, components, and services required for the production of PCBs. These sectors are critical to the PCB manufacturing and assembly process because they supply the necessary inputs to create PCBs.



HEALTHY INDUSTRY OUTLOOK AT 5% CAGR

- The Printed Circuit Board Assembly Market is forecast to reach $73.1 billion by 2027, growing at a CAGR of 5.0% from 2022 to 2027

- Growth is being driven by increasing demand for PCB assemblies from various end-use industries, such as electronics, wireless, medical, automotive, and instrumentation; rising adoption of advanced technologies in these industries is also fueling the growth

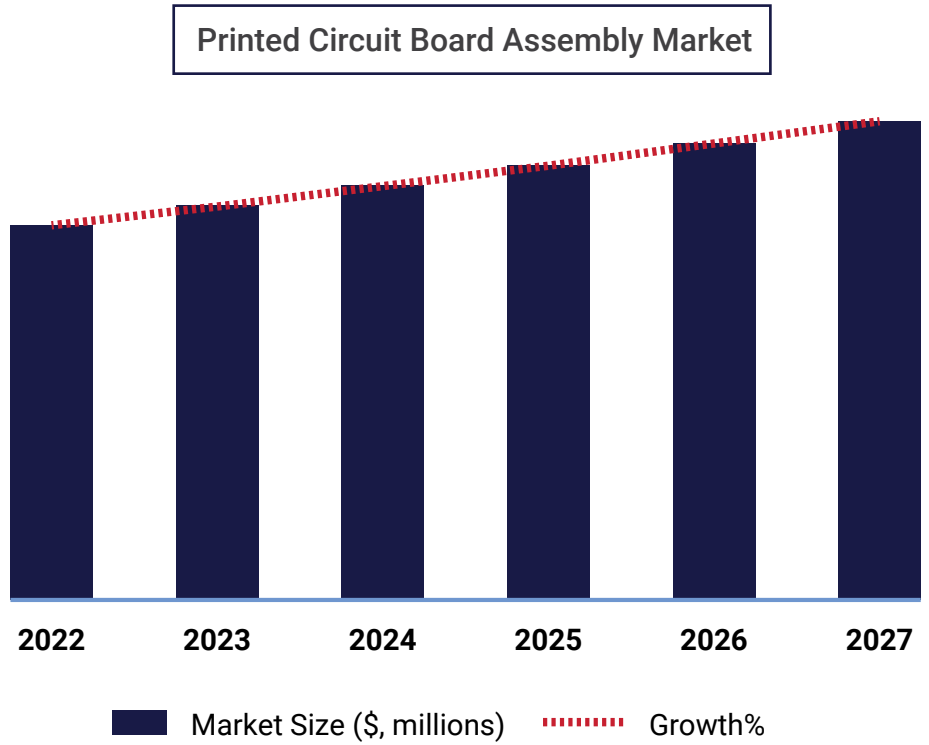
- Demand for onshore manufacturing is expected to grow and attributed to several factors, including national security issues and supply chain challenges; companies with established onshore operations like Trontech could serve key industries as they shift to onshore production.

The PCB market has historically been a dynamic sector with growth driven by the increasing demand for electronic devices across various applications. Economic factors, including trade policies, raw material costs, and labor costs, can also significantly impact the PCB market. For instance, any disruptions in the supply chain, as observed during the COVID-19 pandemic, may affect production capacity and market growth. The Printed Circuit Board Assembly (PCB) Market is forecast to reach $73.1 billion by 2027, growing at a CAGR of 5.0% from 2022 to 2027. Growth is due to increasing demand for PCB assemblies from various end-use industries, such as electronics, wireless, medical, automotive, defense, and instrumentation. Demand for onshore manufacturing is expected to grow due to several factors, including national security issues and supply chain challenges.

We've conducted further extensive industry research that can be seen in our white paper. Please inquire to request a copy.

Source: IBISWorld

Advanced Electronics Drive Demand for PCBA Across Industries



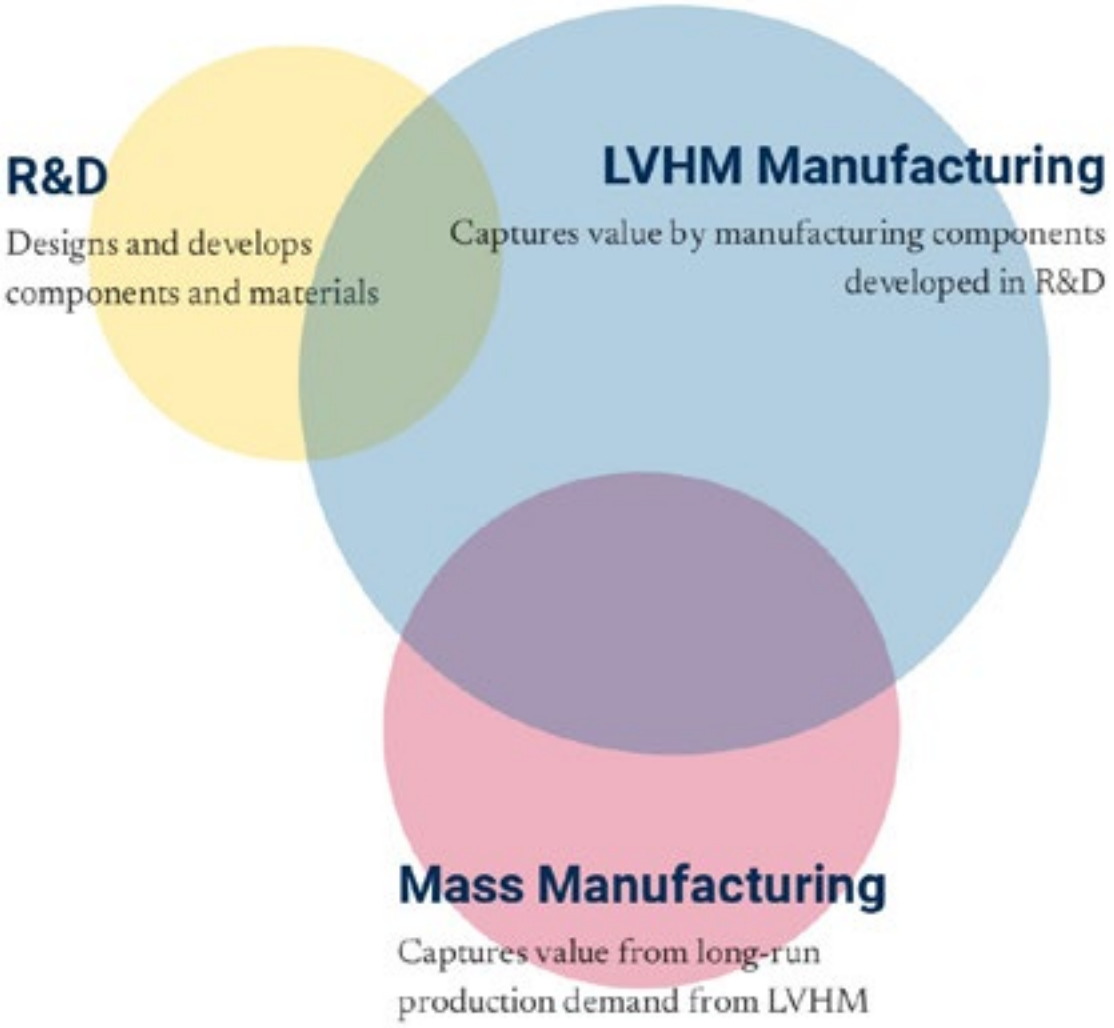
RATIONALE FOR ACQUISITION

Strategic fit

Generating $10 million EBITDA, we consider Trontech a financial acquisition with potential for growth. Based on our thesis, Trontech falls in the segment of high-volume manufacturing that can capture value from our LVHM (Low Volume-High Mix) acquisitions.

The LVHM firms that we consider derive a portion of their revenue from research and development (R&D) contracts. They first develop a prototype. Once finalized and approved by the customer, it goes into small-run manufacturing, typically less than 1,000 pieces. The customer may then require mass manufacturing of said piece in quantities in excess of the firm's capacity. Trontech can capture that demand for high-volume manufacturing.

Trontech can also benefit from the acquisition of an upstream electronic & semiconductor component manufacturer. This would reduce costs and increase control over the supply chain. Finally, it has the capability to expand to the aerospace, defense, and robotics markets.



Strong, independent business

We determined that Trontech was a highly desirable target for a number of reasons. Most importantly, it had the infrastructure and certifications to rapidly pivot into untapped and growing markets—aerospace, defense, and robotics. And because it had established itself as a one-stop shop for PCBA, it had a competitive edge regarding convenience for customers.

Advantages

Stability

Steady revenue Maintained profitability through COVID-19	**Strong financial health** Cost structure surpasses industry averages	**Stable end market** Demand for medical devices steady

Growth

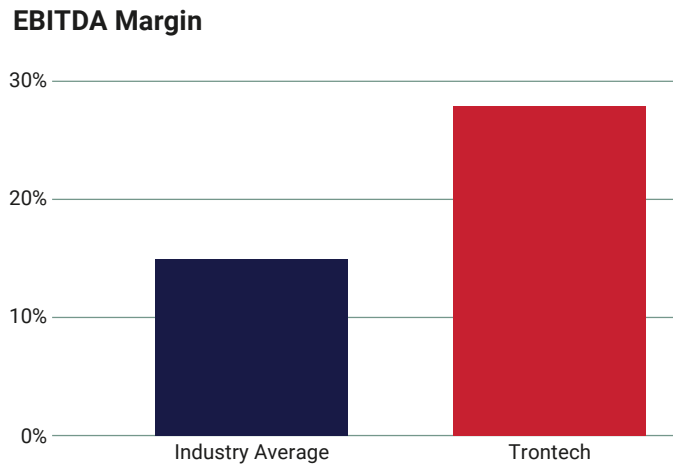
Geographic expansion Sell services and products to new territories	**Expand to rising industries** Infrastructure and certifications in place to pivot into defense and electronics to meet growing demand	**Upstream integration** Acquire component suppliers and manufacturers

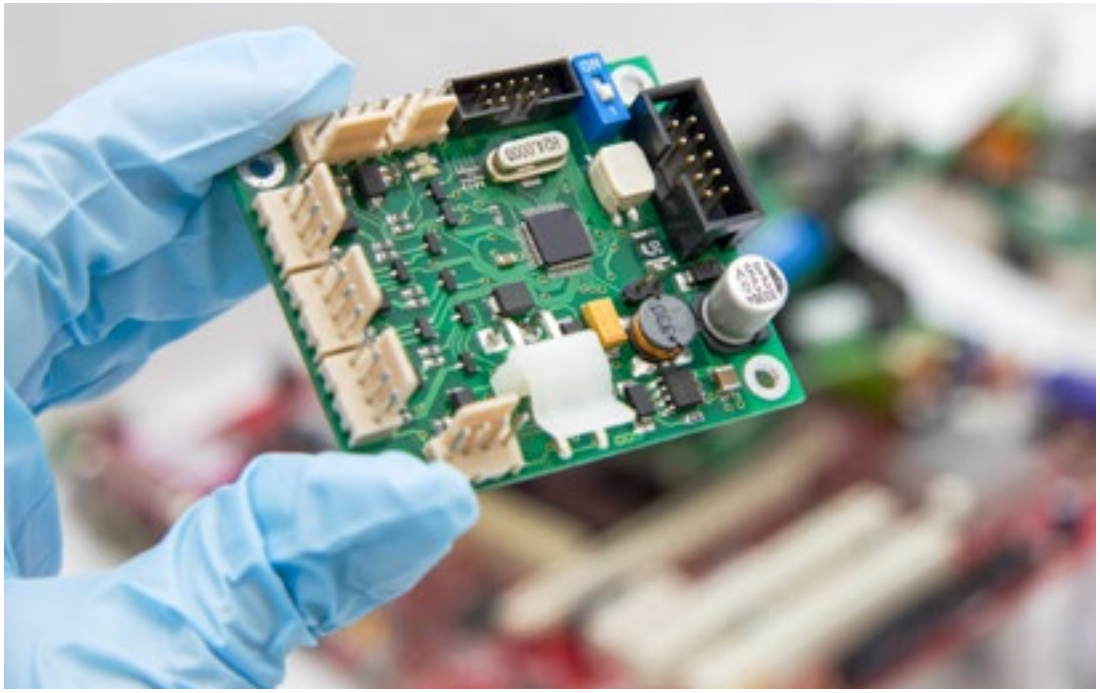
People & Culture

Family succession Owners' adult children are executives	**Employee retention** Employees are cared for	**Commitment to quality** Organization is committed

Superior financial performance

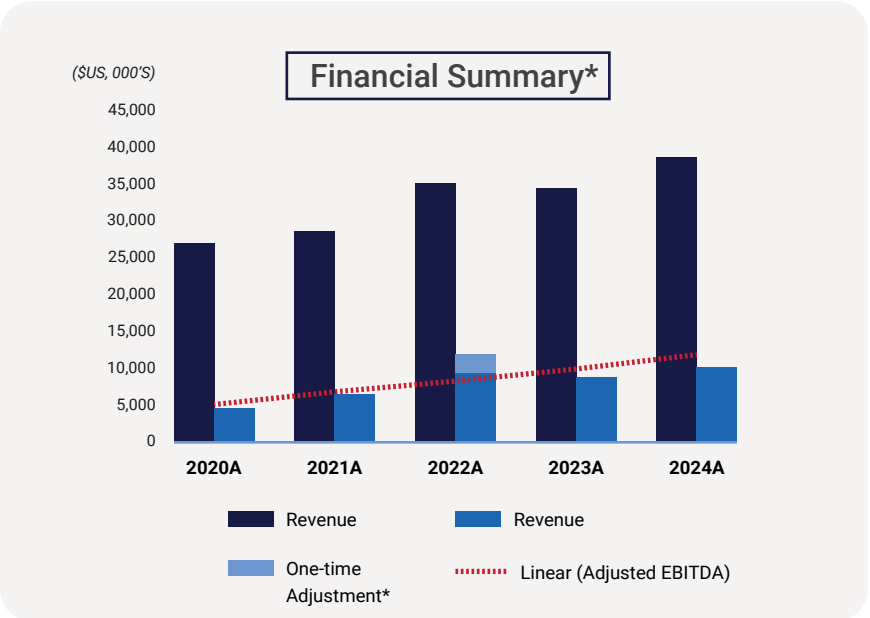
The average EBITDA margin for the PCBA or EMS industry can generally range from around 5% to 15%. However, these figures can fluctuate due to market conditions, commodity prices (such as copper, a significant material in PCBs), labor costs, and the competitive landscape.





Compared to the PCBA industry average, Trontech's financials indicate robust performance, with revenues at $35.9M in 2022 and a projected $36.2M in 2023. The adjusted EBITDA was $10.1M in 2022, projected at $9.1M for 2023. The adjusted EBITDA margins for 2022 and 2023 are 28.1% and 25.1%, respectively.

These figures are competitive, considering the industry's tight margins. The company consistently delivered orders during the COVID-19 pandemic despite the disrupted supply chain, reduced workforce, and increased demand for electronics. The company also demonstrated firm control over their COGS even as their revenue was increasing, driving confidence in sustainable profitability.



Moderate customer concentration risk

The company serves more than 90 customers. In 2022, 62% of the revenue ($22.1 M) came from the top 10 customers. Among them, the top customer contributed $4.19M, accounting for 12%, and the second-largest brought in sales slightly exceeding 10% ($3.67M), while the rest fell between 4%-9%. The company may not depend heavily on a single client, but it underscores the importance of maintaining robust customer relationships. Losing a few significant clients could significantly impact the central portion of the revenue.

In 2022, among the revenue generated by the Top 10 Customers, the Medical industry accounted for the largest share (32%), followed by Commercial (27%) and Industrial (4%). These industries have high demand, presenting opportunities to attract new customers.

The largest customer, in particular, has been partnering with Trontech since 1995, totaling almost 30 years. Generally, the customer base is relatively stable. Maintaining high service quality and a good reputation will likely strengthen existing customer relationships and even attract new clients.

Diversified suppliers reduce supply chain risk

The company's vendor landscape for 2022 reveals its concentration of spending and diverse supplier base. The top 10 suppliers account for a significant portion of its overall expenditure, totaling $22.9M, representing 58%. The largest supplier accounts for transactions amounting to $2.9M (13%). However, most suppliers represent less than 10% of the overall expenditure. Notably, the total spending with suppliers has increased from approximately $15M in 2020 to $22.9M in 2022, indicating substantial growth in Trontech's procurement activities over the past three years.

Strategically located for access to labor and logistical efficiency

Trontech is headquartered in Connecticut, with a 55,000 sq. ft facility. Trontech benefits from its strategic location near major industrial and technology hubs on the East Coast, providing access to a skilled workforce and key business customers in automotive, medical, aerospace, and other sectors. Its proximity to major highways and supply chain partners enhances logistical efficiency and access to key markets in Connecticut and the northeast region., where there is a significant presence of R&D and applied science activity (of note, at Harvard and MIT).

Outsourced back-office operations for efficiency and profitability

Trontech has a 15-year relationship with an India-based service provider. Outsourcing their back-office operations results in three key advantages.

1. Enables faster turnaround for customers by supporting automated and accurate quoting.
2. Bolsters systems-driven processes that support lean operations and adherence to rigorous quality control standards.
3. Time zone and cost structure advantages improve efficiency and profitability.

Internal and external growth

Trontech has existing business with commercial aerospace customers. With its present certifications and compliance status, the company can be grown internally by expanding into the aerospace and defense markets to take advantage of increasing defense spending.

For external growth, Vanguard Industrial Holdings can acquire suppliers and component manufacturers that sell to Trontech, thereby improving margins.

RISKS & MITIGATION

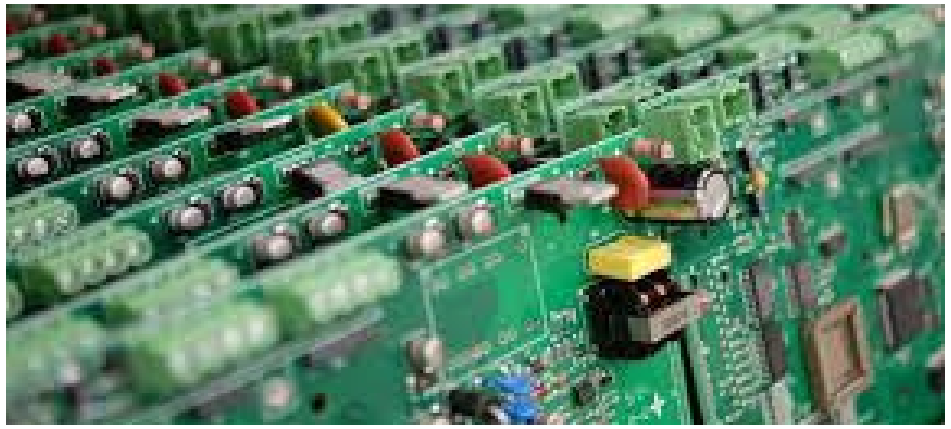
Supply chain disruptions

The COVID-19 pandemic exposed the underlying issues and inefficiencies of the supply chain. Supply chain management and mitigation of risks are critical factors in the resilience and performance of manufacturing companies.

To mitigate the risk of supply shortages in manufacturing, we can implement various strategies to ensure the continuity of supply and minimize the impact of shortages.

Mitigation strategies include:

- Diversifying the supplier base and improving supplier relationships
- Managing inventory through demand forecasting and supply chain visibility
- Strategic stockpiling



Industry competition

PCB assembly is a competitive industry with low margins. Risks include: labor shortage, supply chain disruption, changing demand in electronics, technological obsolescence, and changing regulations.

Trontech was able to perform well by investing in automated operations, hiring skilled workers, outsourcing part of the internal operation to India, and forming sustainable relationships with suppliers. However, post-acquisition, we would stay ahead of the competition in numerous ways:

- Investing in new technologies whenever possible and needed
- Expanding its customer base to aerospace and defense
- Selling in new geographic markets
- Electronic hubs to leverage the logistic advantages and tap on the potential for recruiting R&D talent

FINANCIAL ANALYSIS

Valuation

Our team conducted a DCF valuation which takes into account Trontech's recent run rate performance, short- and intermediate-term growth prospects, and the broader industry landscape. Because we plan for long time horizons, we opted for the perpetuity growth method. We arrived at a Total Enterprise Value of $32M, representing a 5.2x present EBITDA multiple.

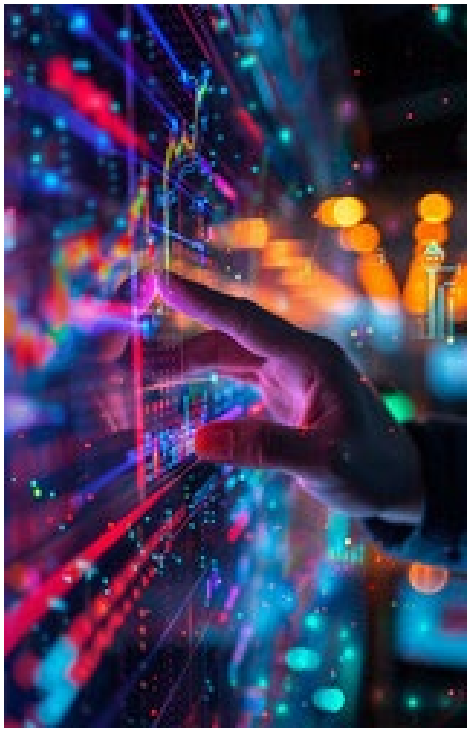
Projections

We forecast Trontech's revenues to grow from a base of $35M by a very modest pace of 2% to 1% annually over the next five years. Given our investment thesis, we intentionally curb short-term topline expectations, despite viable expansion opportunities that can realistically balloon revenues to 10-30% above present-day levels.

With a healthy balance sheet and stable operations, we project that Trontech can maintain their ability to sustain a 17% EBITDA margin (run rate of $6M EBITDA), with room to grow as we continue to synergize and optimize overhead costs.

For future capital expenditures, we used an industry benchmark of ~2.5% of revenue, or just under $1M annually.

Finally, this culminates in about $5.2M of free cash flow, increasing steadily over time.



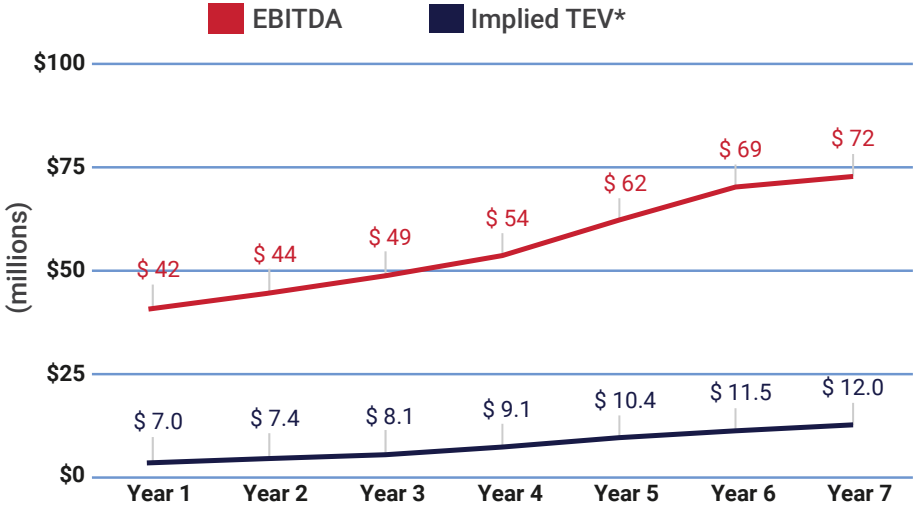
Return on Investment

Although Vanguard Industrial Holdings intends to grow each business individually, investors' equity in the holding company are projected to grow much more significantly. A direct investment would conservatively net a 20-24% internal rate of return given a 7 year exit. At the holding company level, investor equity will grow dramatically through our growth strategy involving serial acquisition. Given a conservative rate of acquisition of $10m EBITDA every 3 years and $2m in other years, we anticipate reaching $416m TEV in 10 years, not including the growth of any individual company.

Direct Investment

- 7 Years to exit
- 70% ROI
- 20–24% IRR

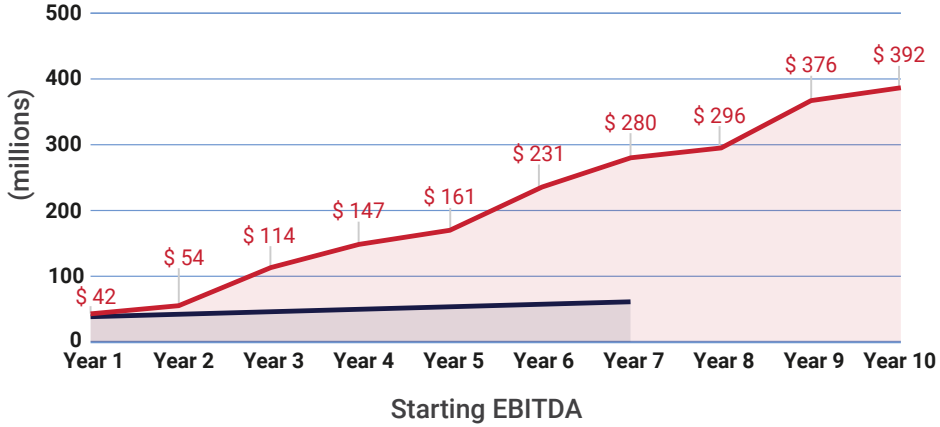
Trontech Growth (in millions)
*Assuming 6x EBITDA multiple



HoldCo Equity

- 10 Years to exit
- $60m Starting TEV (6x EBITDA entry)
- $52m Additional EBITDA
- $416m Ending TEV (8x EBITDA Exit)
- 6.9x TEV Increase

Vanguard Industrial Holdings 10-years Implied TEV*
*Assuming 6x EBITDA multiple



IMPLEMENTATION PLAN

Under our overarching vision for Vanguard Industrial Holdings, portfolio companies (PortCos) generally retain their own culture and organizational structure. We believe in minimizing disruption and retaining the value that has been created over the years of successful operation. In other words, "Don't fix what's not broken." We also believe in decentralized leadership, where each PortCo is able to make decisions at the local level while drawing on the experience and expertise of other companies under our umbrella.

Transition to new ownership

The first 90 days of any transition are crucial. There are two dimensions that are of immediate concern: organizational and operational.

During this time, our overarching objective is to ensure that we understand the business and are able to operate it in the event of the departure of key personnel. Because we're a people-first organization, our central office's leadership team will assure that the staff understand that we are firmly committed and fully present in the continued operation of the company. We'll also create a sense of safety and stability to reduce the risk of disruption to teams.

Key Transition Activities

Ownership will introduce our team to key external relationships (e.g. suppliers, customers).

- New leadership team collaborates with ownership to begin developing strong relationships with existing managers and staff.
- Conduct operations audit: review of policies, processes, and procedures; identify gaps in understanding and documentation and address them.
- Begin identifying institutional knowledge and document it to reduce reliance on personnel.

Beyond the initial transition phase, our leadership team will conduct random site visits. Techtron's management team will report to us on a frequent and regular basis.

Communication plan for stakeholders

We believe in transparency and integrity. Quarterly updates will be sent to all stakeholders, and all financial information will be furnished in a timely manner.

Risk mitigation strategies

Cultural Integration and Workforce Disruption

Being that Techtron was considered a financial and platform acquisition, we would be dependent on the management team staying on. The primary concern revolves around the disruption of operations due to the departure of key personnel.

To mitigate this risk, the company's managers will be evaluated through a thorough battery of interviews and assessments conducted in a naturalistic and conversational manner. We begin assessing managers in varying dimensions as early as possible—pre-due diligence where possible, in order to reduce the risk of broken-deal costs related to personnel issues.

Supplier and Customer Retention Risks

Changes in management and ownership can disrupt relationships with suppliers and customers. To mitigate this risk, we promote overcommunication to reduce uncertainty. Effective communication and support are crucial. When evaluating the suppliers and customers, we consider the risk of dissatisfaction and the risk of a change in pricing and terms. To mitigate these risks, we quickly identify alternative suppliers and proactively manage the relationships with customers by setting up regular rhythms of checking in where appropriate.

Personal Dimension	Risk	Mitigation
Financial motives	Undercompensated managers pose a flight risk	Offer a salary increase, performance-based bonus, or participation in an equity program
Ideological and political stance	Pivoting into the defense sector may be objectionable to some	Develop pipeline of replacements. HoldCo Leadership Team will be ready to step in
Personal motivations	Managers may have an unmet desire for authority or recognition	Adjust their position where appropriate
Psychological makeup and personality	Managers may be a poor fit for their position	We use the Big 5 personality trait framework and screen out low conscientiousness, low agreeableness, and high neuroticism.

CONCLUSION

Trontech would've made a very strong acquisition due to its financial strength and proven stability through COVID-19. Given that the PCBA industry is projected to grow at a CAGR of 5% and reach $73.1 billion by 2027, and given that the utilization rate was not at 100%, Trontech was in position to keep up with the growing demand. Had it been acquired, Vanguard Industrial Holdings would've led the company into the aerospace, defense, and robotics markets where it would reap the benefits of tremendous growth.

Ultimately, Trontech moved forward with competing offers from strategic buyers and larger private equity firms. Undoubtedly, due to the competitive bidding process, the business was acquired at a much higher valuation. While the broker was unable to disclose the details of the transaction, it was suggested that a strategic buyer acquired it at a high multiple that outcompeted all other private equity firms.

Armed with a right-sized capital base, Vanguard Industrial Holdings would be equipped to move forward quickly to seize good opportunities. We have architected a deal flow engine to secure off-market deals before brokers get to them, resulting in better valuations and higher ROI. Our deal flow engine uses highly scalable AI-driven marketing and a multichannel, multifaceted approach to create a chokehold on manufacturing deal flow. And when it comes time to transact, our holding company is able to offer owners creative deal structures that the majority of competing buyers cannot.

VANGUARD
Industrial Holdings

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