



Specialty Industrials



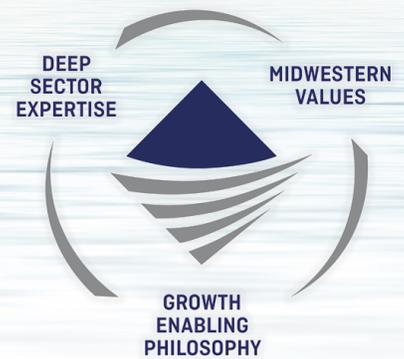
Life Science



Advanced Materials



Specialty Chemicals

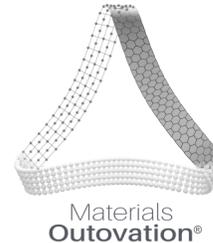


## Investment Thesis:

### Microwave Devices, Components and Materials

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### Market Overview

The Microwave Devices market has been estimated to range between \$7-\$12Bn with a CAGR as high as 10%. Key drivers include a need for high throughput, high fidelity communications for military, medical and other applications. A highly technical field, dominated by electromagnetic engineers ensures that conversations remain tech-focused even at tradeshows and the selling process is often engineer to engineer. Applications often require very high power density, and demands high thermal dissipation which pushes the limits of materials (and composite) technologies. Products include antennas, waveguides, and components.

Fig a). Microwave Components Market Growth Trajectory

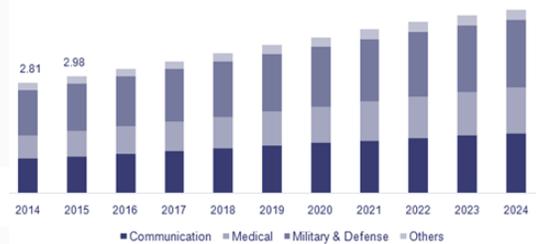


Fig b). Computational Modeling of a Rectangular Waveguide

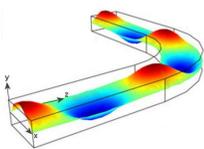


Fig c). Microwave PCB



Fig d). Large Radar Antenna



Fig e). Vehicle Detection System

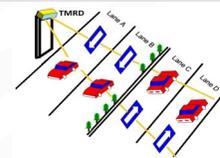


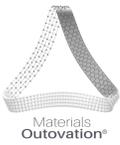
Fig f). Waveguide Tube



### Target Areas for Edgewater Capital Partners (ECP) in High Power Microwave

A sector focused fund in advanced materials and components space, ECP's interest is in companies making: (1) **Microwave absorbers**, (2) **Adhesives for MMIC**, (3) **Ceramic substrates for MMIC**, (4) **Coatings**, (4) **Crystals**, (5) **Feedthroughs**, (6) **Reflectors**, (7) **Shielding materials and technologies**, (8) **Thermal dissipation materials**, (9) **Waveguide materials and components**, (10) **Fiber-optic components**, (11) **Miniature precision components**. In addition, ECP welcomes companies with advanced measurement and instrumentation capabilities in high power microwave devices.

Proprietary designs, proprietary manufacturing process sequences, consultative selling process, early involvement in the design phase, ability to partner from prototype to volume manufacturing, modeling ability are all desirable attributes of the target companies. Highly technical teams in development, manufacturing and commercial teams would be welcome.



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### About Edgewater Capital Partners

Edgewater Capital Partners, headquartered in Cleveland, Ohio, is a sector focused private equity firm investing in lower, middle-market performance materials businesses. We have extensive experience and expertise in niche manufacturers of specialty chemicals, pharmaceuticals, and engineered substances. Twenty years of industry specific investing has allowed us to develop a deep understanding of the complexities and nuances common to performance materials businesses. As a result, we believe expertise in our target markets enables us to quickly and comprehensively understand a company’s value proposition, customer relationships, and perceived or misunderstood risks.

### About the *Materials Outovation*<sup>®</sup> Practice

*Materials Outovation*<sup>®</sup> Practice of ECP focuses on businesses whose core theme for growth relies on leveraging the composition, structure, properties, and processing of materials to provide customized performance in a material or a component for a specific application. Material families of interest include metal, alloys, ceramics, glasses, polymers, composites, adhesives, coatings, cements, concrete, and others. Phrases such as “mission critical”, “enabling”, “high performance”, among others are often used to describe the materials and components produced by companies in this practice.

*Materials Outovation*<sup>®</sup> refers to the systematic process of looking “outside” the organization (at suppliers, consultants, other companies, customers, universities, experts, startups) to find ways of triggering innovation “inside” the organization for new markets, new applications, new customers and new technology – all of which enhances highly profitable growth. The professional networks of our operating partners provide a rich source for industry specific contacts.

The practice aspires to instill in each portfolio company world class business tools including environmental health and safety conscious culture, a lean operational culture inspired by the Toyota Production System and a streamlined supply chain – all in a spirit of continuous improvement, set in a backdrop of highly professional governance practices (adopted from the NACD guidelines).

We encourage a transparent open culture, emphasizing management team and employee empowerment including continually investing in the development of our people.

### References

1. Microwave Devices Market Analysis By Band Frequency (S-Band, C-Band, X-Band, Ku-Band, Ka-Band), By Communication (Wireless, Broadcast), By Application (Communication, Medical, Defense), By Region, & Segment Forecasts, 2018 – 2024. **Grandview Research**
2. Dublin, May 09, 2019 (GLOBE NEWSWIRE) -- The "Monolithic Microwave IC (MMIC) Market by Component (Power Amplifiers, LNA, Attenuators), Material Type (GaAs, InP), Frequency Band (L, S, C), Technology (MESFET, HEMT), Application (Automotive, A&D), and Geography - Global Forecast to 2024" report has been added to **ResearchAndMarkets.com's** offering. The Monolithic Microwave Integrated Circuit (MMIC) market is estimated to grow from USD 7.7 billion in 2019 to USD 12.7 billion by 2024, at a CAGR of 10.6% between 2019 and 2024.
3. The microwave devices market was USD 5.58 Billion in 2016 and is projected to reach USD 8.22 Billion by 2022, at a CAGR of 62.4% from 2017 to 2022. **Markets and Markets.**

**P**rofitability **A**ccelerated Growth **S**afety **S**ynergy **I**nnovation **O**utovation **N**ew Products<sup>®</sup>