

# **Multimode Optical Fiber Market ? Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Product (Step Index & Gradient Index), By Application (Defence; IT & Telecom; Government; MSO (Triple Play), Healthcare & Others), By Material (Glass & Plastic), By Region & Competition, 2021-2031F**

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## **Abstracts**

The Global Multimode Optical Fiber Market is anticipated to expand from USD 4.52 Billion in 2025 to USD 7.03 Billion by 2031, registering a CAGR of 7.64%. Defined as a category of optical cabling with a large core diameter that supports the simultaneous propagation of multiple light modes, multimode fiber acts as the primary medium for high-speed, short-distance data transmission within enterprise networks and data centers. The market is chiefly driven by the intensifying demands of cloud computing and artificial intelligence workloads, which necessitate low-latency, high-density interconnects within facilities. These core drivers exist independently of technical shifts, such as the industry move toward OM5 fiber classifications or the adoption of co-packaged optics. Highlighting the sector's recovery, the Fiber Broadband Association projected in 2024 that global optical cable demand would grow by 3.9 percent, reflecting strong investment in the physical infrastructure needed for these advancing digital ecosystems.

However, the market encounters a significant obstacle due to the physical constraints of modal dispersion, which degrades signal integrity over longer distances. This inherent limitation restricts multimode fiber to short-range applications, effectively preventing it from competing with single-mode alternatives in long-haul telecommunications and inhibiting its integration into broader wide-area network architectures.

## Market Driver

The rapid growth of hyperscale data center infrastructure acts as the primary catalyst for the multimode optical fiber market, particularly as operators densify server racks to support artificial intelligence workloads. These facilities depend heavily on multimode fiber for short-reach connections because of the lower power consumption and reduced cost of vertical-cavity surface-emitting laser transceivers compared to single-mode equivalents. This demand is reflected in massive financial investments in the essential optical components for these high-speed environments. For instance, Lumentum reported in its August 2025 'Fourth Quarter and Full Fiscal Year 2025 Results' press release that revenue for its Cloud & Networking segment reached \$1.41 billion for the fiscal year, driven by record orders for datacom chips used in AI infrastructure. This surge in component revenue directly correlates to the volume of multimode cabling deployed to interconnect these active devices within data halls.

Simultaneously, the accelerated global rollout of 5G network architectures creates significant downstream demand for optical fiber to support densified cell sites and centralized radio access networks. While long-haul segments primarily utilize single-mode fiber, aggregation layers and connected edge data centers increasingly incorporate high-capacity cabling solutions to handle the throughput requirements of next-generation mobile networks. Illustrating this scale, China Mobile announced a tender in June 2025 to procure approximately 98.8 million fiber-kilometers of optical cable products to maintain its network expansion. This infrastructure boom is further evidenced by broader residential and enterprise reach; according to the Fiber Broadband Association's 'Fiber Deployment Survey' from January 2025, fiber broadband deployments reached a new annual record of 10.3 million U.S. homes passed in the preceding year, underscoring the robust ecosystem growth supporting diverse fiber applications.

## Market Challenge

The Global Multimode Optical Fiber Market faces a critical barrier to growth stemming from the physical limitation of modal dispersion. This phenomenon causes signal distortion over distance, limiting the effective transmission range of multimode cabling to short links within buildings or campuses. Consequently, this constraint prevents multimode fiber from competing in high-volume long-haul and metropolitan network sectors, which are dominated by single-mode alternatives capable of maintaining signal integrity over kilometers. This inability to support broader wide-area network

architectures severely limits the total addressable market for multimode manufacturers, confining them to a niche segment despite the overall surge in global connectivity.

The magnitude of the market opportunity lost due to this distance limitation is demonstrated by the scale of residential infrastructure projects that exclusively utilize single-mode cabling. According to the Fiber Broadband Association, in 2024, fiber broadband deployments reached a new annual record of 10.3 million U.S. homes passed. This figure represents a massive segment of infrastructure investment that remains technically inaccessible to multimode optical fiber solutions, directly limiting the market's potential for volume expansion.

## **Market Trends**

The shift toward High-Density Optical Interconnect Solutions is fundamentally altering the market's technical architecture as data center operators migrate to parallel optic configurations to maximize throughput. This trend involves the massive deployment of multimode vertical-cavity surface-emitting lasers (VCSELs) capable of delivering 100 gigabits per lane, replacing legacy duplex links with high-count multifiber connectivity to support the bandwidth density required by next-generation computing clusters. The scale of this technological transition is evidenced by the sheer volume of active lanes being deployed for short-reach applications; according to Broadcom's March 2024 'Broadcom Extends Technology and Volume Leadership on AI Optical Components' press release, the company announced shipments of more than 20 million channels of 100G/lane high-speed optical components specifically deployed in artificial intelligence and machine learning systems.

Simultaneously, the integration of Multimode Fiber in Automotive In-Vehicle Networks is establishing a critical new vertical for optical cabling beyond the enterprise sector. As automotive manufacturers transition to zonal electrical/electronic architectures, there is a rapidly growing adoption of optical ethernet backbones to replace heavy copper harnesses, primarily to reduce weight and ensure immunity to electromagnetic interference in electric vehicles. This application requires specialized, ruggedized multimode fiber capable of maintaining gigabit speeds in harsh environmental conditions. The industrial commitment to scaling this automotive supply chain is illustrated by significant capital allocation; according to KD's July 2024 'Approaching Shannon's Limit: KDPOF becomes KD' press release, the company secured a 26.8 million euro IPCEI investment from the European Commission to establish a high-volume packaging plant for automotive optoelectronics.

## Key Market Players

Corning Incorporated

OFS Fitel, LLC

Prysmian Group

Nexans S.A.

Sumitomo Electric Industries, Ltd.

Fujikura Ltd.

Furukawa Electric Co., Ltd.

Sterlite Technologies Limited

Yangtze Optical Fibre and Cable Joint Stock Limited Company

CommScope, Inc.

## Report Scope

In this report, the Global Multimode Optical Fiber Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Multimode Optical Fiber Market, By Product

Step Index & Gradient Index

Multimode Optical Fiber Market, By Application

Defence; IT & Telecom; Government; MSO (Triple Play)

Healthcare & Others

## Multimode Optical Fiber Market, By Material

Glass & Plastic

## Multimode Optical Fiber Market, By Region

North America

United States

Canada

Mexico

Europe

France

United Kingdom

Italy

Germany

Spain

Asia Pacific

China

India

Japan

Australia

South Korea

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

### **Competitive Landscape**

Company Profiles: Detailed analysis of the major companies present in the Global Multimode Optical Fiber Market.

### **Available Customizations:**

Global Multimode Optical Fiber Market report with the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

### **Company Information**

Detailed analysis and profiling of additional market players (up to five).

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