GLOBAL PICO PROJECTOR MARKET (2013–2020)

By Technology (DLP, LCoS, LBS), Type (USB, Standalone, Media player, Embedded), Product Model, Brightness, Application (Aerospace & Defense, Automotive, Business & Education, Consumer, Healthcare) & Geography
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MarketsandMarkets covers thirteen industry verticals, including advanced materials, automotives and transportation, banking and financial services, biotechnology, chemicals, consumer goods, energy and power, food and beverages, industrial automation, medical devices, pharmaceuticals, semiconductor and electronics, and telecommunications and IT.

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1 INTRODUCTION

1.1 KEY TAKE-AWAYS

• Impact analysis of the Pico projector market dynamics, which describes factors currently driving and restraining the growth of the market as well as their impact in the long run

• Opportunities and innovation-driven Pico projector market highlights, R&D trends, and the major regions and countries involved in such developments

• Burning issues and winning imperatives of the Pico projector market

• Analysis of the various applications of the Pico projector market and market dynamics of each application

• Identifying segments with high growth potential; also understanding the future application segments

• Key trends related to the product technology, prices, and applications that shape and influence the Pico projector market

• Region-specific developments and peculiarities

• The major stakeholders in the market and competitive landscape for the market leaders

• Analysis of the key growth strategies of leading players in the Pico projector market

• Analysis of the different applications along with identification of segments with high growth potential.

1.2 REPORT DESCRIPTION

Pico projectors are tiny projectors which are basically battery operated and fit into the user’s pocket. These can be easily connected or embedded in handy devices like mobile phone, digital cameras, camcorders, digital photo frames, laptops, mobile TV, portable media players, and portable gaming devices. The two most significant segments of these projectors are stand
alone projectors and embedded projectors. Stand alone projectors could be attached to any display device through USB ports; and the ‘media player’ projectors, which have an in-built memory slot. ‘Embedded’ projectors are Pico projectors embedded within a device such as cell phones and laptops and can project any file or document within this device.

The market, currently, is within the explosive growth time period, and has been witnessing steep price erosion. The market will stabilize over a period of time and when the price of Pico projectors drops down. The report gives insights into:-the different trends in this market, whose segment would drive the growth, and as to how this market would mature in the next seven years. The report tries to demystify this journey of the global Pico projector market.

The four major technologies incorporated in the Pico projectors are Digital Light Processing (DLP), Liquid-Crystal-on-Silicon (LCoS), Laser-Beam-Steering (LBS), and holographic laser projection. DLP and LCoS form the mainstream technologies. This uses a white light source and a filtering technique to create a distinct brightness and color on each pixel. The main components used in Pico projectors are battery, light source (green laser diodes, LEDs, HBLEDs) and optics (optical engine). Pico Projectors market is also classified according to the brightness it provides. The report has classified Pico projectors in the following brightness range: 0-50 Lumens, 50-100 Lumens, and 100 lumens and above. The majority of Pico projectors manufactured today, lie within the 0-50 lumens range.

The application market of Pico projectors is segregated into consumer electronics, retail, automotive, business and education, aerospace and defence, and others. Geographically, the global Pico projectors market is segmented into four major regions namely the Americas, Europe, Asia Pacific, and the Rest of the World. The report presents a forecast about:-the future growth from 2013 to 2020, market size, company profiles, market share, and the key strategies of the leading players.
1.3 MARKETS COVERED

The entire report is broadly divided into Pico projector market segments. The market data point for each of the segment is categorized under the following verticals: technology, product types, product model, components, brightness, applications, and geography. The figure below gives an overview of the macro and micro markets covered in the report.

The figure below gives the detailed explanation of each segment:

Source: MarketsandMarkets Analysis
Technology:
- The Pico projector market is segmentation is based on technology used, which includes: Digital Light Processing (DLP), Liquid-Crystal-on-Silicon (LCoS), Laser Beam Steering (LBS) and holographic laser projection.

Product Types:
- The Pico projector product types are segmented into USB, embedded, media player, standalone and laser Pico projectors.

Components:
- The component section is further segmented into lighting source, optics, batteries, and others.

Brightness:
- The Pico projector product types segmentation is based on different lumen (brightness) used, which includes: 0-50 lumen, 50-100 lumen and 100lumen and above.

Applications:
- Applications of the Pico projector market include aerospace &defense, automotive, business & education, healthcare, industrial, retail, consumer electronics and others.

Geographies:
- The geographic market is further segmented into major regions that include the Americas, Europe, Asia Pacific (APAC), and Rest of the World (ROW).

1.4 RESEARCH METHODOLOGY
This research study involves the usage of extensive secondary sources: directories, and databases such as Hoovers, Bloomberg, Business-week, Factiva, One-Source, and so on to identify and collective information which is useful for this extensive technical, market-oriented,
and commercial study of this global market. The primary sources are mainly industry experts from core and related industries and preferred suppliers and certification organizations from companies, organizations related to all the segments of this in, manufacturers, distributors, administrators, solution providers, technology developers, alliances, and standards industry’s value chain. All the primary sources were interviewed to obtain and verify critical qualitative and quantitative information as well as assess the future prospects.

The below figure shows the market research methodology applied in making the report on the global Pico projector market.

**FIGURE 2**

**MARKET RESEARCH METHODOLOGY**

- **Secondary Research**
  - Value Chain
  - Key Players
  - End User Applications
  - Market Classification
  - Annual Reports of key industry players
  - Geographical markets with their market shares
  - Market Trends
  - Technological Developments

- **Primary Research**
  - Numbers Validation
  - Competitive Landscape Validation
  - Market Dynamics Validation
  - Technology Developments
  - Market Estimation
  - Market Restraints

- **Market Crackdown**
  - Top-Down Approach
  - Bottom-Up Approach
  - Data Triangulation
  - Qualitative and Quantitative Analysis
  - Market Segmentation
  - Market Estimates
  - Market Forecasts

Source: MarketsandMarkets Analysis
1.4.1 MARKET SIZE

Both - “Top-Down” and “Bottom-Up” approaches were used to estimate and validate the market size of the global market and for market size estimation of various other dependent sub-markets in the overall Pico projector market. The research methodology used to estimate the market size also includes the following details:

The key players in the industry and markets are identified through secondary research while formulating the industry value chain and their market revenue were determined through primary and secondary research. They include study of the annual and financial reports of the top market players and also extensive interviews of key opinions from leaders such as CEOs, Directors, and Marketing Executives.

All the percentage shares, splits, and breakdowns were determined using secondary sources and verified through primary sources. All the possible parameters that affect the markets covered in this research study have been accounted for, viewed in extensive detail, verified through primary research, and analyzed to get the final quantitative and qualitative data. This data is consolidated and added with detailed inputs and analysis from MarketsandMarkets, and presented in this report.
The below figure shows an illustrative representation of the Pico projector market size estimation process implemented in this research study in a consolidated format.

**FIGURE 3**

**MARKET SIZE ESTIMATION**

Firstly, the Bottom-Up procedure was implemented to arrive at the overall market size of Pico projector from the revenue of the key players (companies) deployed.

Calculations based on the revenue and shipments of key companies identified led to overall market sizes. The overall Pico projector market size was used in the Top-Down procedure to estimate the market sizes of all the other individual markets in the market segmentation by technology, application and geography via percentage splits from secondary and primary research.
The figure above shows the core data triangulation procedure used in this report for every market, sub market, and sub-segment. The percentage split-up of various major market segments was used to arrive at the market sizes of each Pico projector market by product type and geography.

The major aspects focused on interconnecting the values when deduced from application, geography, and company revenue are illustrated through the arrows in the figure above. The exact reverse of the above-mentioned procedure, i.e., “Bottom-Up” from product type and geography segments to arrive at the overall market size and "Top-Down” from overall market to arrive at the individual company (key players) revenue was also done to validate all the market revenue for all the applications (which is a parent market) in arriving at the overall market size of Pico projector market and similarly for all the market segments and sub-segments. Analogous to these, the market volume and Average Selling Prices (ASPs) in each of the market segments were arrived at similar methods and procedures. Data was also triangulated among the value, volume, and calculated ASPs. Thus, validation of data was done by deriving data from the several aspects of the respective market segments.
1.4.2 **KEY DATA POINTS TAKEN FROM SECONDARY SOURCES**

- Data for extensive and exhaustive segmentation and classification of the global Pico projector market
- Validation and triangulation of all the numbers and graphs
- Segmentation breakups, split-ups, and percentage shares
- Data for market revenue and volume
- Key industry trends of the top players of the Pico projector market
- Qualitative insights into various aspects of the market, key trends, emerging areas
- Quantitative data for mathematical and statistical calculations
- Company statistics (quantitative) and developments (qualitative) for company profiles

1.4.3 **KEY DATA POINTS TAKEN FROM PRIMARY SOURCES**

- Validation of numbers for revenue cycle of the markets
- Market shares of key industry players in the market
- Percentage split of individual markets for geographical analysis
- Forecast for various market segments of the overall markets and validation of the forecast data
- Technological landscape, competition between technologies, industry preferences, market dynamics
- Competitive landscape of the key players, market shares, market share rankings, the competition dynamics and recent industry activities
2 EXECUTIVE SUMMARY

The Pico projectors are an emerging technology set to revolutionize the global projector market by making projectors portable enough to fit into a person’s pocket. The Major advances in imaging technology have allowed the introduction of Pico projectors. It can be in the form of a small handheld device, or in the form of a tiny light-engine added as an accessory to consumer electronics such Smartphones, laptops, notebooks, tablets, cameras and Personal Digital Assistants (PDAs). As with most image projectors, Pico projectors too need a dark room to function.

Standalone, media player, USB and embedded are the four types of Pico projectors which are currently available in the market. Standalone, media player, USB Pico projectors have a higher demand than embedded projectors as they can be used with multiple gadgets, whereas embedded Pico projector is limited to the device it is embedded in. Embedded Pico projectors are yet to capture the market. In consumer electronics, automotive and aerospace and defense application, embedded Pico projector is expected to grow in the coming years. The technologies incorporated in the Pico projectors are Digital Light Processing (DLP), Liquid-Crystal-on-Silicon (LCoS), and Laser-Beam-Steering (LBS). Holographic technology is not yet commercialized now in Pico projectors. The major components which comprises in a Pico projector are lighting source, battery and optics.

The major driving factors for the Pico projector market which are expected to pay rich dividends in the coming years are Micro Electro Mechanical System (MEMS) technology, increase use of embedded and the declining average selling price of Pico projector. Consumer electronics will provide high opportunity to the Pico projector market to capture maximum market share in the next few years.

The key players in the Pico projector market are Coretronics Corporation (Taiwan), Optoma Technology Inc (U.S.), AAXA Technologies Inc. (U.S.), Aiptek International Inc. (U.S.), 3M Co (U.S.), Texas Instruments Inc (U.S.), Syndiant Inc (U.S.), Himax Technology (Taiwan), Osram GmbH (Germany), Samsung Electronics Co. Ltd. (South Korea), Wowwee Group Ltd.
(Hongkong), EpiCrystals Inc (Finland) and Light Blue Optics (U.K.).

### TABLE 1

**GLOBAL PICO PROJECTOR MARKET VALUE, BY PRODUCT TYPES, 2013 - 2020 ($MILLION)**

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Source: MarketsandMarkets Analysis

The global Pico projector market in product types is expected to grow from the $XX million that it accounted for, in 2012, to $XX million in 2020, at an estimated CAGR of XX% from 2013 to 2020. Stand-alone segment accounted for the largest share of $XX million in 2012. This segment is expected to reach $XX million in 2020, at an estimated CAGR of XX% from 2013 to 2020. Stand-alone projectors are mostly useful in business, education, healthcare, industrial, and the retail industry. Embedded Pico Projector segment is expected to grow at the highest CAGR of XX% from 2013 to 2020, as consumer electronics embedded with the Pico projectors are expected to penetrate the market in the next seven years.
The Global Pico Projector market in product types is expected to grow from $XX million that it accounted for, in 2012, to $XX million in 2020, at an estimated CAGR of XX% from 2013 to 2020. The Americas accounted for the largest share of $XX million in 2012. This segment is expected to reach $XX million in 2020, at an estimated CAGR of XX% from 2013 to 2020. APAC is expected to generate more revenue than Americas in 2020, and is anticipated to grow at an estimated CAGR of XX% from 2013 to 2020. In the coming years, more and more consumer electronics products embedded with Pico projectors are expected to be introduced; therefore, APAC being the leader in consumer electronics products, is expected to witness a high growth with regards to the Pico projector market.
2.1 HISTORY AND EVOLUTION OF PICO PROJECTORS

The advances in imaging technology have endorsed the introduction of hand held type projectors. The figure below shows the history and evolution of Pico projectors.

FIGURE 5

HISTORY AND EVOLUTION: PICO PROJECTORS

Source: MarketsandMarkets Analysis

The concept of hand held projectors was introduced by Explay (Japan) in 2003 to various players of consumer electronics. The first public showcase of the Pico projector was done by Digislide Commerce (Australia) at the ANZA tech conference on October 2006, and the company was the winner of “ANZA Hottest Technology Award” in 2005. In 2008 Optoma Technology (U.S.) launched world’s first Pico projector with DLP technology and during the same year AAXA Technologies Inc (U.S.) also launched the Pico projector with model number P1 Jr having LCoS Technology. Nevertheless, most of the LED projectors up till May 2009 had been widely disapproved for having insufficient brightness even in a normally lit room. In 2010, the AAXA Technologies Inc (U.S.) and Microvision Inc (U.S.) introduced the first Laser show Projectors (LSP) Pico L1 and SHOWWX. In 2011, Texas Instruments Inc (U.S.) announced the improved Digital Light processing (DLP) chip sets which enable brighter images, such that Pico projectors using DLP technology also increases the brightness. The AAXA Technology in 2012 introduced the brightest battery powered Pico projector which can yield brightness up to 300 lumen. By 2015, high performance laser projector and mobile phone embedded projectors will revolutionize. Nevertheless, the most stimulating use of Pico projectors might not be like projecting movies, which are associated with traditional projectors. As an alternative, Pico projectors could be used for augmented reality functions.
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