



FOR IMMEDIATE RELEASE:

LiFi¹: mainstream or niche technology?

Extracted from: LiFi - Technology, Industry, and Market Trends report, Yole Développement & PISEO.

LYON, France – December 11, 2018: LiFi represents a strong potential technology, announces [Yole Développement \(Yole\)](#) and [PISEO](#). However, both partners do see two major challenges that could prevent the technology from developing at a fast pace in the short/mid-term: standardization activities, and development of products and services integrating LiFi. In this context, two market development scenarios are envisioned by Yole and PISEO analysts: a “Bear” scenario - LiFi as a complementary communication technology for niche applications. And a “Bull” scenario- LiFi, the favored communication technology for strong use-cases.

The new LiFi report performed by Yole and PISEO, titled [LiFi – Technology, Industry and Market trends](#), offers a comprehensive description of the LiFi industry and market, including supply/value chain, company profiles of key LiFi technology providers, product segmentation, and a detailed section focused on the market volume & revenue forecasts. It also presents an in-depth analysis of LiFi systems, including light emitter and receiver, electronic data management, and digital modulation aspects. In addition, analysts point out in this new analysis, the global standard and regulation aspects related to LiFi development.



Niche or mainstream technology? LiFi is today an established communications technology, but significant obstacles remain... Yole and PISEO analysts offer you a snapshot of this technology and its development.

Currently, the LiFi industry is still in its infancy. “Our best expectation is for significant growth to begin in 2021, with a 53% CAGR² between 2021 and 2023”, asserts **Pars Mukish, Business Manager, SSL³ &**

Displays at Yole. “Industrial, hospitality & healthcare, retail, office,

¹ LiFi : Light Fidelity

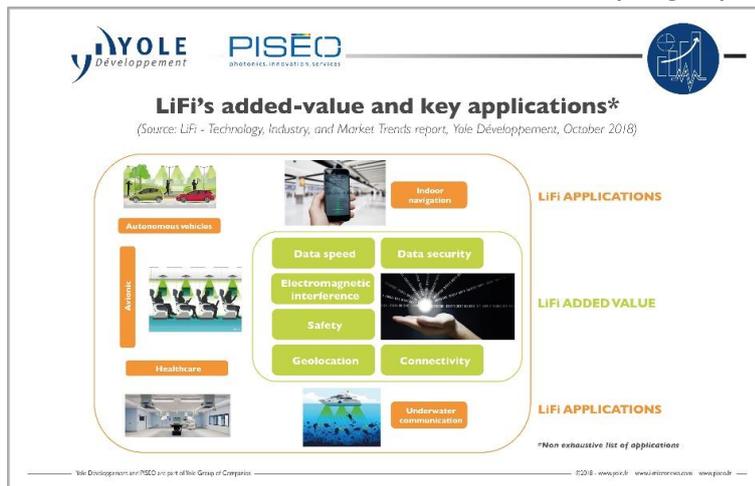
² CAGR : Compound Annual Growth Rate

³ SSL: Solid-State Lighting

education, and residential will represent 80% of the expected volume in 2023.”

Technology integration and volume will then allow strong cost/price reduction, which will fuel market growth that could reach US\$2.7 billion in 2028.

Introduced by Harald Haas in 2011, LiFi is an OWC⁴ technology. LiFi uses the electromagnetic spectrum’s visible-light portion to transmit information at very high speeds. LiFi is strongly valued nowadays,



thanks to the development of LEDs⁵, which represent high-frequency semiconductor light sources capable of transmitting information. To perform such communication, LEDs are modulated at a high frequency level that can't be perceived by the human eye.

With the recent boom in SSL, LEDs are now commonly used in lamps, luminaire, and many other lighting devices considered as potential data providers for LiFi systems.

Compared to other OWC technologies, LiFi offers advantages such as:

- **Speed:** High transfer data rates have been achieved in multiple demonstrations, with LiFi sometimes presented as 10 - 100x faster than Wi-Fi.
- **Security:** Visible light-beam and intensities are easily controlled with existing technologies.
- **Energy efficient:** The transmitted energy for communication is carried by visible light, which is intrinsically used for lighting applications.
- Etc... See the figure: "LiFi's added-value & key applications."

"Many applications can benefit from LiFi technologies: avionics, underwater data communication, healthcare, automotive & transportation, education, and more," comments **Joel Thomé, General Manager at PISEO**.

By nature, LiFi helps solve specific issues in numerous applications: for example, reducing a plane's weight by using optical fiber instead of copper cables, or eliminating the risk of electromagnetic interference in hospitals. On a broader scale, LiFi can also provide additional bandwidth capacity to communication networks (when available).

A detailed description of this report is available on i-micronews.com, [SSL reports section](#).

⁴ OWC : Optical Wireless Communication

⁵ LED : Light Emitting Diode

ABOUT THE REPORT:**LiFi - Technology, Industry, and Market Trends**

LiFi: niche or mainstream technology? – Produced by Yole Développement (Yole) and PISEO, both part of Yole Group of Companies

Companies cited in the report:

ACS, Acuity Brands, Advancephotonics, Airbus, AMD, Ampleon, Analog device, Anadigics, Apple, Aptima, Babcock, Bechtel, Bentham, BMW, Broadcom, Canon, Carrefour, CBRE, Centronic, CIE, Cisco, Deutsche Telekom, DHL, Digi International, Egigap, Electro-Optics technology, Emcore, Everlight, Excelitas, Fagor Electronica, Fernionics, Firefly LiFi, First Sensor, Fraunhofer HHI & IPMS, Freescale Semiconductors, Fujitsu, Global LIFI Tech, H&M, Hamamatsu, Hilton, Hochstein, Hochtieff, Home Depot, Huawei, IEC, IEEE, IES, Inditex, Infineon, Infrared Data Association, Inping, Intel, JLL, Keio University, Lightbee, Lucibel, Luciom, Lumileds, Luna, Macom... [Full list](#)

Authors:

- **Pars Mukish** holds a master degree in Materials Science & Polymers (ITECH - France) and a master degree in Innovation & Technology Management (EM Lyon - France). Since 2015, Pars has taken on responsibility for developing SSL and Display activities as Business Unit Manager at Yole Développement (Yole). Pars is part of the Photonics, Sensing & Display division at Yole. Previously, he has worked as Marketing Analyst and Techno-Economic Analyst for several years at the CEA (French Research Center).
- As part of the Photonics, Sensing & Display division at Yole Développement (Yole), **Pierrick Boulay** works as Market and Technology Analyst in the fields of LED, OLED and Lighting Systems to carry out technical, economic and marketing analysis. He has experience in both LED lighting (general lighting, automotive lighting...) and OLED lighting. In the past, he has mostly worked in R&D department for LED lighting applications.
Pierrick holds a master degree in Electronics (ESEO - France).
- **Joel Thomé** is General Manager & Senior Research & Innovation Consultant at PISEO. In collaboration with Yole Développement's team, Joel Thome performs numerous technical and market analyses focusing on Photonics based solutions, in addition to developing innovative optical solutions with PISEO's R&D team. With a Master's Degree in mechanical engineering, Joel has been working in the lighting industry for more than 25 years. After beginning his career at Philips Lighting, he has recently held various global business, marketing and R&D senior management positions. During this period he developed strong expertise in lighting controls, LED technology and innovation processes including strategic roadmaps and project portfolio management.
- **Dr. Olivier Andrieu** is an R&D Project Director and Mechatronic System Architect at PISEO. He is working in collaboration with Yole Développement's team to perform comprehensive technical analyses of innovative Photonicsbased illumination and detection systems and markets. His expertise is based on the development of disruptive solutions taking into account mechanical, electronic, optic and thermal issues to achieve application requirements. Previously, Dr. Andrieu worked for EFI Automotive as head of innovation and more recently for Philips Lighting where he developed and implemented numerous LED lighting solutions on a global level.

**ABOUT PISEO**

PISEO is an independent center of expertise specialized in the integration of photonic technologies (LED, VCSEL, Laser diodes, image sensors, phosphors, optical materials...) and their applications. Endowed with a strong industrial crop, the company performs consulting, testing and training activities in the field of optical systems for all business sectors. More information on www.piseo.fr; Contact: Joël Thomé, (thome.joel@piseo.fr)

**ABOUT YOLE DEVELOPPEMENT**

Founded in 1998, Yole Développement (Yole) has grown to become a group of companies providing marketing, technology and strategy consulting, media and corporate finance services, reverse engineering and reverse costing services and well

as IP and patent analysis. With a strong focus on emerging applications using silicon and/or micro manufacturing, the Yole group of companies has expanded to include more than 80 collaborators worldwide covering MEMS & Sensors - Imaging - Medical Technologies - Compound Semiconductors - RF Electronics - Solid State Lighting - Displays - Photonics - Power Electronics - Batteries & Energy Management - Advanced Packaging - Semiconductor Manufacturing - Software & Computing - Memory and more...

The “More than Moore” market research, technology and strategy consulting company Yole Développement, along with its partners System Plus Consulting, PISEO and KnowMade, support industrial companies, investors and R&D organizations worldwide to help them understand markets and follow technology trends to grow their business. . For more information, visit www.yole.fr and follow Yole on [LinkedIn](#) and [Twitter](#).

- Consulting & Financial Services: Jean-Christophe Eloy (eloy@yole.fr)
- Reports: David Jourdan (jourdan@yole.fr)

Yole Développement, System Plus Consulting, Knowmade, PISEO and Blumorpho are part of Yole Group of Companies. Yole Group of Companies - Press Relations & Corporate Communication: Sandrine Leroy (leroy@yole.fr).

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