

2017 AV INDUSTRY OUTLOOK AND TRENDS ANALYSIS

AMERICAS



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Printed in the United States of America

Published by InfoComm International, 11242 Waples Mill Road, Suite 200, Fairfax, VA 22030-6079

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ABOUT INFOCOMM INTERNATIONAL

InfoComm International® is the global trade association representing the commercial audiovisual and information communications industries. Established in 1939, InfoComm has more than 5,400 members, representing over 70,000 AV professionals worldwide, including manufacturers, systems integrators, dealers and distributors, independent consultants, programmers, rental and staging companies, end users and multimedia professionals from more than 80 countries. InfoComm International is the leading resource for AV standards, market research and news. Its training, certification and education programs set a standard of excellence for AV professionals. InfoComm International is the founder of InfoComm, the largest annual conference and exhibition for AV buyers and sellers in the Western Hemisphere. InfoComm also produces trade shows in China, Europe, India, Latin America and the Middle East. Additional information is available at infocomm.org.



ABOUT IHS MARKIT

IHS Markit (Nasdaq: INFO) is a world leader in critical information, analytics and solutions for the major industries and markets that drive economies worldwide. The company delivers next-generation information, analytics and solutions to customers in business, finance and government, improving their operational efficiency and providing deep insights that lead to well-informed, confident decisions. IHS Markit has more than 50,000 key business and government customers, including 85 percent of the Fortune Global 500 and the world's leading financial institutions. Headquartered in London, IHS Markit is committed to sustainable, profitable growth. Additional information is available at ihsmarkit.com.

FOREWORD

InfoComm International® is proud to present the 2017 AV Industry Outlook and Trends Analysis (IOTA) report, produced in cooperation with IHS Markit. The new series of studies, conducted by IHS Markit on behalf of InfoComm, draws on the London-based global firm's extensive sources of information, analytics and expertise across critical technologies to forge solutions for industries and markets that drive economies worldwide.

The IOTA series comprises four separate reports, a global report and three regional reports covering the Americas, Europe, and Asia-Pacific. The three regional reports include analysis for sub-regions and select countries. In addition, the regional reports provide analysis of key solution areas, including command and control, conferencing and collaboration, digital signage, live events, security/surveillance/life safety, and simulation and visualization.

The global report offers a high-level summary of the regional analysis, but also includes worldwide market forecasts, plus an extensive opportunity analysis of the pro-AV market for products and services in major verticals, including cinema, corporate, education, energy and utilities, government and military, healthcare, hospitality, media and entertainment, residential, retail, transportation, and venues and events. The report also discusses the future of the industry and key trends in the technologies brought to bear on AV solutions, such as cloud and software-as-a-service, as well as commodity IT equipment.

The 2017 IOTA offers new, more detailed breakouts of pro-AV products and enhanced features to help you make the most out of this important research. Further, for the first time, InfoComm and IHS are making available pivot tables of the underlying data for additional analysis.

These reports could not have been successful without the work of IHS Markit and its extensive network of analysts around the world. We would also like to thank the pro-AV professionals who participated in in-depth interviews for their time and effort in helping us collect data provided in this report.

Please enjoy this new research. We hope you find it beneficial to you and your organization.

Sincerely,

Director of Market Research

InfoComm International

INTRODUCTION, SCOPE, AND METHODOLOGY

This study of the professional AV industry has been compiled for InfoComm International® by IHS Markit.

IHS Markit is a global, leading provider of information and expertise across many industries. IHS Markit has more than 5,000 analysts, data scientists, financial experts, and industry specialists working across numerous industries, including leading positions in energy, finance, technology, and transportation. IHS Markit provides information services and expertise to 50,000 companies in more than 140 countries, including 85 percent of the Fortune Global 500 and 94 of the largest 100 U.S. corporations.

The work on this study was undertaken by the Technology Group at IHS Markit, started in late 2016 and took around six months to complete. It draws from numerous direct interviews with companies in the industry, as well as data collection and compilation from across the ongoing research areas supported by IHS Markit.

The basic methodology used in this report involved detailed data collection from a significant sample of the key vendors in each industry segment covered. Many of the industry segments have a long history of support by IHS Markit research, including audio, capture, control, display, projection, storage, and services. Across related professional AV segments, IHS Markit has a team of more than 50 analysts globally, many bringing unique expertise and insight to the project. Most of these research areas involve quarterly monitoring and communication with leading companies in the industry segment, and publication of leading insights into quarterly and ongoing market trends.

In addition, many of the solution areas included in this study have been covered in detail from the buyer side, looking at contracts, installations and deployments globally for broadcast and media, command and control, corporate conferencing and collaboration, digital signage, military and governmental, retail, education and hospitality, and security surveillance. Again, IHS Markit has specialist teams looking at industries from the buyer side rather than the technology side, and that provided this report with additional detailed insight into the decision-making for diverse industries, from retail advertising to military simulations. Each of these industries utilizes a wide cross-section of technologies and services from the entire pro-AV supply chain, and this has been unpacked and aligned with total market drivers for the relevant product and service segments.

Alongside existing research and the team of experts at IHS Markit, the firm incorporated primary research through direct interviews with companies in the industry, secondary research from both internal and external sources, and detailed macro-economic forecasts to apply the industry trends observed across additional countries and regions. By aggregating and cross-referencing these various views of products and services against solutions and industry buyers, IHS Markit has created the most detailed and evidenced view of the use of professional AV equipment and services.

EXECUTIVE SUMMARY

Strong, Stable Growth Bound to U.S. Economic Fortunes

The overall economy in the Americas is once again on an upward trajectory. On the heels of severe economic contraction in Central and South America, and stable post-recessionary growth in North America, the American continent's aggregate output will grow steadily through 2019. On balance, the economic prerequisites for creating and sustaining robust professional AV demand across the Americas are already present.

In the United States, employment gains and burgeoning consumer confidence have contributed to an auspicious outlook. Confidence levels have reached a 17-year apex, the economy continues to add jobs, businesses have rekindled fixed investment, and real disposable income growth continues to buoy consumption.

Canada is emerging from sub-1 percent growth in 2015, and modest, 1.4 percent growth in 2016. Manufacturing, as well as oil and gas extraction, have contributed to a strong start in 2017.

The Mexican economy has also seen steady growth since 2015. Inflation is well controlled, net job creation remains positive, and consumption has been supported by income growth. However, Mexico's dependence on trade attenuates its overarching, longer-term prospects. Global trade volumes have slowed

markedly, and by some measures have reached a steady-state since early 2015.

By contrast, the Brazilian economy has fallen on rougher times, contracting 3.8 percent in 2015, and 3.6 in 2016. In 2017, things are looking brighter, and the double-digit inflation seen in 2015 and 2016 has now fallen dramatically, leading the central bank — in a sign of confidence — to start decreasing interest rates. It is currently expected that Brazilian output will remain flat in 2017, and will grow by 2 percent and 3.4 percent in 2018 and 2019, respectively.

The Argentinian economy is suffering from an inflation and credibility problem. The Instituto Nacional de Estadistica — the Argentine national statistics bureau and the country's primary source of financial and budgetary data — is regarded skeptically. As a result,

the cost of borrowing has soared, and inflationary expectations remain high. On balance, Argentinian output contracted by nearly 2 percent in 2016. It is nonetheless expected that the country will emerge from recession in 2017. The current government's laundry list of structural, financial, and legal reforms — including a complete overhaul of the Instituto — should address the country's underlying credibility deficit.

Despite Canada's stable growth, Mexico's positive trajectory, and Brazil's emergence from recession, the continent's fortunes are inextricably bound to the health of the United States economy, which is strong, and more importantly, to its policy environment.

It is currently anticipated that gross U.S. output will increase by 2.4 percent year-on-year through 2019. This forecast assumes that

the Trump administration successfully passes a major infrastructure spending bill, that the statutory corporate tax rate is reduced to 20

As outlined by the Secretary of the Treasury in May 2017, the Trump administration's guiding principles on taxation include a lower-than-an-

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percent, and that the budgetary consequence of this reduction is offset by a streamlining of the tax code, and the elimination of a range of deductions and loopholes.

However, U.S. tax reform is still a wildcard; it remains a significant source of uncertainty and could engender ripple effects whose influence extend far beyond mere legislative code.

ticipated corporate tax rate on C-Corporations, as well as an incentive structure that could push high earners to form sole proprietorships, and in so doing, benefit from an additional, proposed cut in the tax rate that pass-through entities and S-Corporations are subject to.

It is virtually certain that an overhaul of the U.S. tax code will not be revenue neutral. To the extent that future legislation fails to close loopholes, and reduces tax receipts by more than currently anticipated, the budgetary consequences of the proposed overhaul could jeopardize Congress' willingness to pass a major public expenditure bill.

Coupled with President Trump's pledge to re-negotiate NAFTA, and potentially scale back free trade agreements in the region, U.S. growth prospects — and the region's as a whole — are largely, but not unconditionally, set in stone.

AV Industry Overview, Americas — Total Market and Region

The professional AV industry in the Americas generated \$65 billion in 2016. With the exception of the market's moderate 2015 contraction, it is anticipated that growth will proceed unabated, reaching \$83 billion by 2022.

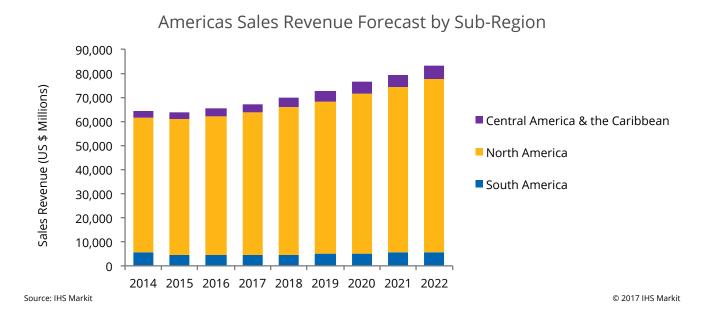
Over the current forecast horizon, pro-AV industry value will increase by over 4 percent year-on-year, on average. No other macro region exhibits as strong a dependence on a single market as does the Americas; the U.S. accounted for more than \$8 of every \$10 spent on pro AV in the Americas.

The United States' relative importance to the Americas market is not anticipated to erode. By 2022, U.S. pro-AV revenues will still account for 80 percent of spend. Together with Canada, the North American sub-region will capture 86 percent of the industry's value in 2022.

Central America generated \$3.2 billion in 2016, relative to South America's \$4.5 billion. Whereas the Brazilian market — and the South American sub-region by extension — will struggle, the Mexican market will exhibit a CAGR of 9 percent through 2022, and will single-handedly lift revenues and value creation in the Central American sub-region.

Mexico's AV market was just below Brazil's in 2014 and by 2022, Mexico's market will more than double Brazil's AV sales. By 2022, Central America and the Caribbean will account for nearly 7 percent of the Americas' industry value.

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AV Industry Overview, Americas — By Product/Service Segment

Streaming media, storage, and distribution (SMSD) platforms generated \$17 billion in 2016, and now account for over 26 percent of the professional AV market.

These platforms consistently generate substantial returns for two major reasons. First, SMSD platforms' storage-and-recovery elements protect AV organizations' most treasured assets, have high intrinsic value as a consequence, and exhibit low elasticity of demand. Second, demand for media players and media servers has increased concurrently with the surge of digital assets, codecs, formats, resolutions, and bitrates. As greater and greater amounts of higher-resolution media assets are produced, stored, and transported in digital form, the need for SMSD platforms will only increase.

Services generated \$13 billion in 2016, and represent the pro-AV industry's second-most valuable segment in the Americas, with onefifth share of the market. Services

The Americas' media space — and the North American media space in particular — is characterized by a proclivity to adopt new technologies, embrace new formats, and experiment with new distribution business models.

will grow at a CAGR of 3 percent through 2022.

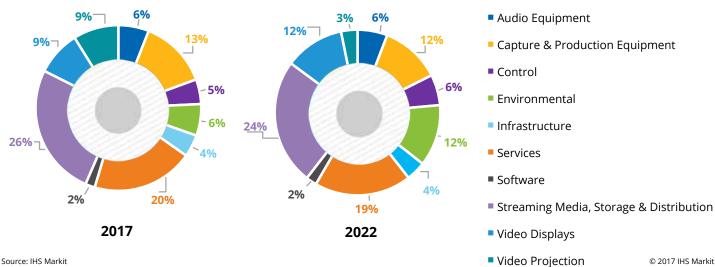
The Americas' media space — and the North American media space in particular — is characterized by a proclivity to adopt new technologies, embrace new formats, and experiment with new distribution business models.

Strength in AV design, systems integration, and programming services is a natural consequence of an AV ecosystem that has become incredibly complex. Systems installation/integration services represent the second-largest share of AV spend — at 13 percent — behind only media servers.

Video displays account for 8 percent of the market — around \$5 billion in 2016 — and over the 2017-2022 time horizon are expected to exhibit a CAGR of 11 percent up to \$9.7 billion.

Two market forces are bolstering the display and digital signage segment. First, consumer sentiment is unprecedentedly high — particularly

Americas Sales Revenue Share by Segment - 2017 vs. 2022



in the U.S. — and this sentiment continues to underpin the retail industry's display purchases.

Second, while the advertising industry has embraced programmatic sales, the ad tech ecosystem, and the "datafication" of marketing campaigns, the out-of-home format continues to be seen as a key, mass-market medium. The out-ofhome segment is a major buyer of displays in the U.S.

In 2014, video projection accounted for over 15 percent of the professional AV industry's value. As of year-end 2016, this segment accounted for 11 percent, and by 2022, it is anticipated that this segment will comprise just 3 percent of spend.

Video projection's value will decrease more precipitously in the Americas than in any other major region. Through 2022, we expect

this segment to lose 15 percent of its value on average, year-on-year.

The environmental products segment is a stable source of value, and is growing quickly. While this segment currently accounts for 6 percent of spend, the segment's 19 percent CAGR will transform its place and role in the AV ecosystem. By 2022, the environmental segment will generate 12 percent of the industry's total value.

AV Industry Overview, Americas — By Product/Service

Media servers — general-purpose servers used for AV functions — singlehandedly added the most value to the pro-AV segment in 2016. Of the 34 discrete products and services categories that this report tracks, media servers alone account for 17 percent of the market's value. Through 2022, media server revenues will increase by almost 4 percent year-on-year — not the fastest growth in the industry, but overall maintaining the largest share of pro-AV spend.

AV installation and integration is the market's second-largest category. It generated \$8.3 billion in 2016, and will grow by over 4 percent year-on-year through 2022, to over \$10 billion.

No other product category is poised to grow more quickly than lighting fixtures. While this equipment makes up a mere 4 percent of industry spend, fixtures will exhibit a 24 percent CAGR, and by 2022, generate 10 percent of the AV industry's value, driven by integrations of LED lighting systems as part of wider smart-buildNo other product category is poised to grow more quickly than lighting fixtures. While this equipment makes up a mere 4 percent of industry spend, fixtures will exhibit a 24 percent CAGR.

ing controls, and integration of more lighting into AV installations in corporate, retail, and transportation.

Projection screens, projector accessories, and projectors themselves are the market's least strongly positioned products. Through 2022, these products will each contract by around 14-17 percent year-on-year.

Control systems are something of an AV industry dark horse. These systems generated \$2.3 billion in 2016, but will grow by 11 percent year-on-year, and will account for nearly \$4.3 billion by 2022 driven primarily by corporate AV integration, smart-building systems, and theater-management systems.



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