



Asia-Pacific



An Overview

	2015	2016	2017	2018	2019	2020	2021	CAGR (2015-2021)
Population	3421m	3450m	3477m	3504m	3530m	3555m	3579m	0.8%
GDP / Capita US\$	\$6,200	\$6,433	\$6,799	\$7,209	\$7,705	\$8,288	\$8,897	6.2%
Internet Penetration (%)	43.2%	45.5%	48.0%	50.5%	53.1%	55.9%	58.7%	5.3%
Smartphone Penetration (%)	29.1%	32.4%	35.3%	37.9%	40.1%	42.0%	43.6%	7.0%

Source: Statista

- The market in APAC is varied as it includes countries at very different stages of broadcast industry development
- Some countries are in the midst of transitioning to digital/HD broadcasting with a great deal of spending going into digital transmission, infrastructure and monitoring equipment
- Others have already migrated to digital/HD broadcasting and are pioneering the adoption of cutting-edge technologies such as UHD and ATSC 3.0



Asia-Pacific



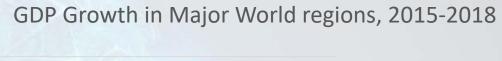
An Overview

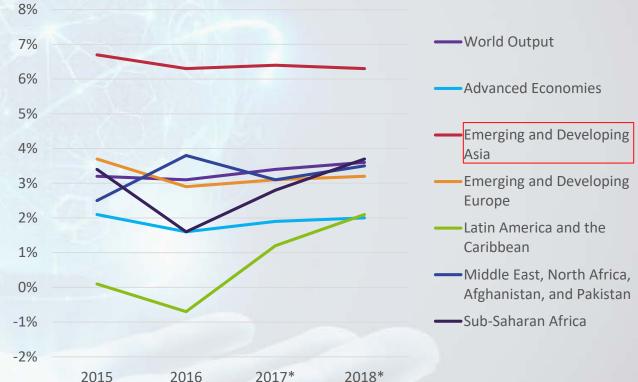




Asia-Pacific Economic Outlook: Stronger than the rest of the world

- Economic growth in APAC remains the highest in the world, mostly driven by India and China - India > China
- The slowdown in the Chinese economy during 2015 softened in 2016 and 2017 as a result of a renewed increase in infrastructure investment
- Growth in Southeast Asia will average 4.8% in the next three years driven by the Philippines, Vietnam, Cambodia, Lao and Myanmar



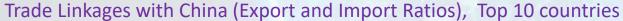


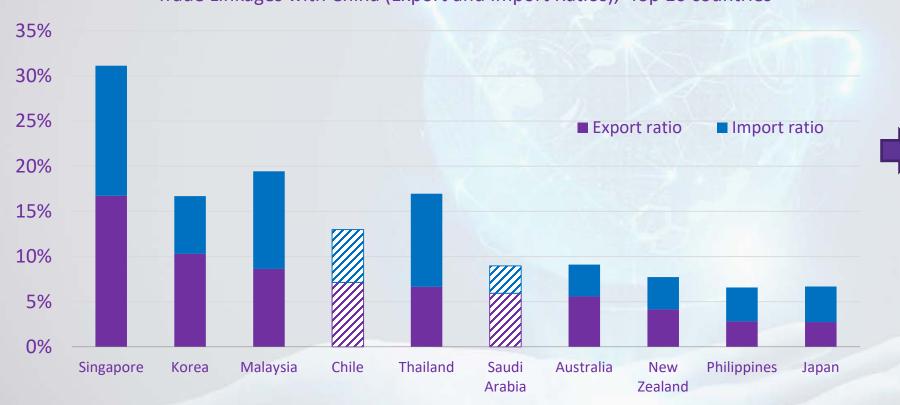
Source: IMF





Most economies are dependent on China





Slowdown in China has affected economic activity in other countries as well!

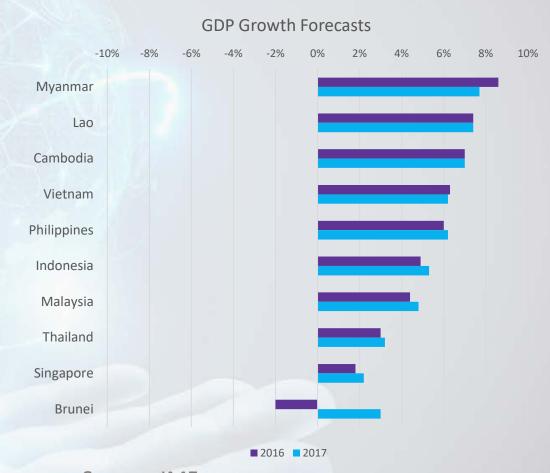
Source: OECD (Organization for Economic Co-operation and Development)





Southeast Asia Economic Outlook: Generally Stronger

- Indonesia: GDP and manufacturing PMI are both rising. Economic conditions are still very positive. Infrastructure spending is though slowing
- **Thailand**: Strength of the baht undermining local export sector imports have soared at the beginning of 2017 due to the currency's appreciation. Infrastructure spending is accelerating
- Malaysia: Economy still suffering from low oil prices and lower global trade this situation should improve in 2017 (more trade)
- Lao & Myanmar: the region's fastest growing economies (growing 7% or higher)
- **Singapore:** will grow the lowest as it is the more mature economy (and it is more dependent on China's growth)

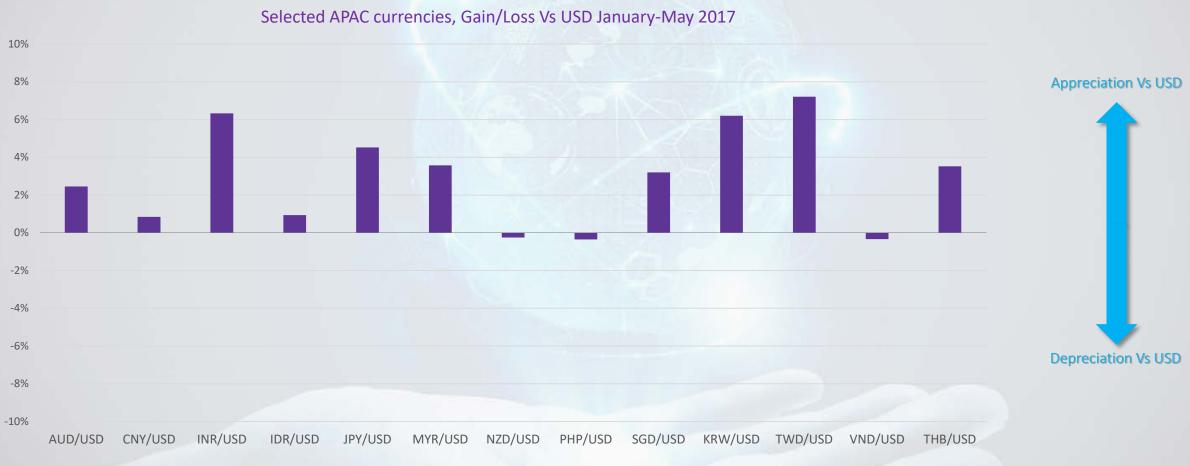


Source: IMF



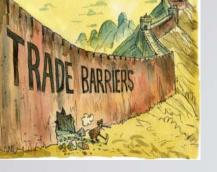


In the first part of 2017, most currencies have appreciated Vs USD



Source: PACIFIC Exchange Rate Services







Trade barriers in China & India

China

India

- China imposes a trade tariffs and other export restraints such as quotas and licences on a variety of products
- Weak Intellectual Property Rights (IPR) protection & lack of trade transparency: trade secrets theft, registration of trademarks in bad faith, procurement preferences for local companies, excessively subsidization of local companies
- "Onerous requirements on the use of encryption, including intrusive approval processes and, in many cases, mandatory use of indigenous encryption algorithms continue to be cited as a significant trade barrier" says USTR report
- New Cybersecurity Law issued at the end of 2016 restricts market access for cloud computing and internet-enabled services

- India imposes tariff and non-tariff barriers. The tariff structure is composed by basic customs duty, an "additional duty," a "special additional duty," an education assessment ("cess") and, possibly, a landing fee
- In 2009, India initiated a web-based Indian Customs Electronic Commerce/Electronic Data Interchange Gateway, known as ICEGATE (http://icegate.gov.in) → more info on the BI Digest
- Tariffs on a variety of products (including telecommunications equipment) were increased recently
- 2014 policy mandates Electronics and Information Technology Equipment Manufacturers register their products with laboratories affiliated or certified by the Bureau of Indian Standards (BIS) even if these have already been certified by accredited international laboratories → higher compliance costs



End-Users' Performance



Both Revenues and Profits are up!

www.theiabm.org

- Positive operational performance at constant exchange rates. This changes when accounting for variance in exchange rates (between 2015 and 2016) - most currencies have lost ground Vs. USD
- Growing Pay-TV market rising revenues and profits across the whole region
- Pay-TV threatened by online piracy it is rife in Asia-Pacific
- Advertising picture varies depending on the country considered

IABM Industry Update Breakfast – Broadcast Asia 2017



Source: IABM End-User Index (Constant Exchange Rates)





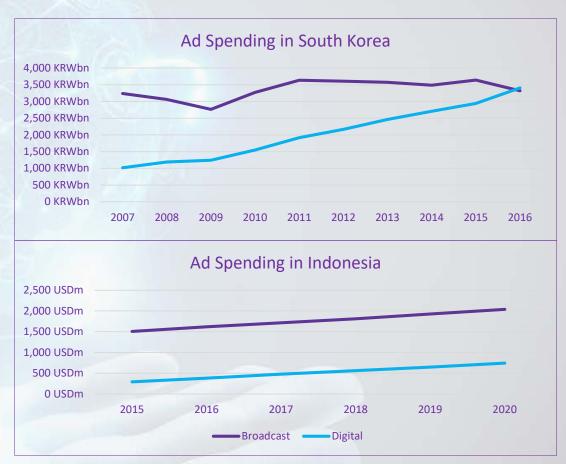
End-Users' Performance



Linear advertising is a liability for end-users in some countries

- In advanced broadcast markets, ad spending is shrinking
- In Australia, the commercial broadcaster Ten Network posted a FY loss of \$157m for 2016 and issued a profit warning in February 2017 saying that the advertising industry is "under severe duress". Advertising revenues in Australia were down by 3% in the period July-December 2016 (ThinkTV)
- The same is not true for emerging markets such as the Philippines, Thailand and Indonesia – broadcast advertising is up there

IABM Industry Update Breakfast – Broadcast Asia 2017



Source: CJ E&M, eMarketer

www.theiabm.org







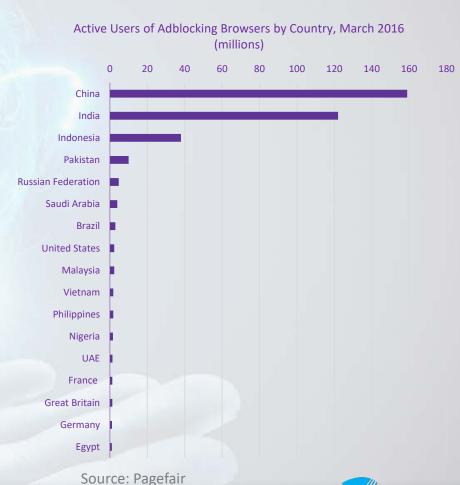


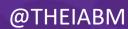
End-Users' Performance



Piracy & Ad-Blocking are major issues in APAC

- Pay-TV is expected to grow by 5.8% in the period 2016-2021. This is slower than before due to piracy opportunity for conditional access & DRM vendors
- Subscriber growth is expected to slow down in Southeast Asia although ARPU is set to remain healthy
- Ad-blocking software is highly concentrated in Asia. For instance, the Asia-Pacific region contains 55% of global smartphone users but 93% of ad-blocking browser usage!
- In India and Indonesia, more than half the smartphone population use ad-blocking browsers. Pop-up ads appearing on browsers reduce page loading speed and this is exacerbated in emerging countries as mobile broadband infrastructure is less developed



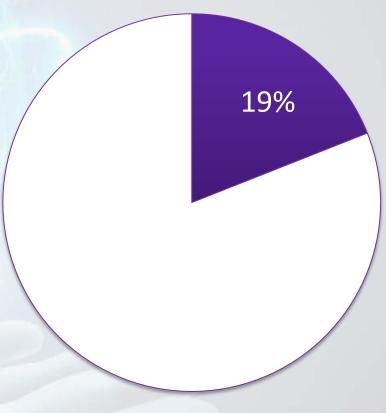


Broadcast & Media Tech Market



Media Technology Spending in APAC

- Asia-Pacific represents 19% of global media technology spending
- It represents an increasing source of revenue for many vendors
- Many suppliers that suffered from the 2008-2010 recession continued to report positive figures
- Important market for acquisition and production technology vendors. HDTV and digital are still relevant spending drivers in the region



Source: IABM DC





Digital Transition



Status of Digital Transition in APAC

- Only five countries have completed the digital transition in APAC (12.5%), the rest is either going through the transition or has not started it yet. Major constraint to completing the transition is: lack of government funding to household and broadcasters
- One of the few exceptions is Thailand (where the transition is ongoing): the communications regulator has distributed millions of vouchers to buy digital equipment. Eligible households include those living in social housing and "state enterprise" officials. The expected DSO date is 2020
- In Myanmar, the original DSO plan entails the analogue switch-off of over 200 stations between 2017 and 2019. The expected DSO date is 2020. The Myanmar government has recently issued five new free-to-air licences (DVB-T2) in April 2017 to the following broadcasters: DVB Multi Media, Fortune International, Kuang Myanmar Aung, Mizzima Media, and Young Investment Group

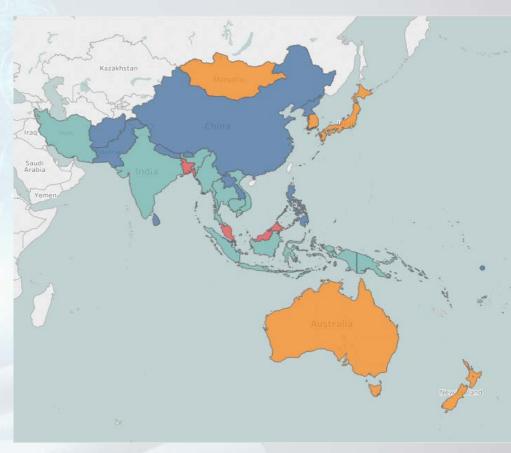


Digital Transition

Status of Digital Transition in APAC

- sia2017
- Not Started Completed
 Unknown Ongoing

- Vietnam intends to complete the transition to digital by 2020.
 Between 2017 and 2018 over 20 provinces will switch to digital
- The two most populous Southeast Asian countries, Indonesia and the Philippines, should complete their transitions by 2018 and 2023 respectively
- In Indonesia, DTT has been tested in 20 cities including Jakarta since 2016 – Indonesia is set to become the third-largest digital TV market by the end of the decade
- In the Philippines, GMA network has already invested in digital equipment. ABS-CBN has begun testing the technology in major cities. The government has recently unveiled its plan for transmission via the Japanese system ISBD-T



Source: ITU





HD Spending

HD Deployment in APAC

Broadcast sia2017

- South East Asia's potential for increased HDTV channel deployment is big
- In China there is 1 HD channel for every 9.4m TV households. In the US there is 1 HD channel for every 197K TV households
- Other countries (except from Japan, South Korea etc.) have very low HD penetration rates as well
- Satellite broadcasting is important to the development of HD in Asia-Pacific. Many satellite service providers have expanded their capacity in the region to allow for a more extensive coverage
- In the next three years, the digital dividend in countries transitioning to digital will allow for more efficient delivery → more HD channels







Source: Statista



4K/UHD Spending



4K/UHD Adoption in APAC

- S Korea ATSC 3.0 UHD transmission to start the 31st May 2017 (beating USA). ATSC 3.0 will aid the further growth of 4K/UHD channels in the country
- The transition to 4K/UHD is underway in Japan, South Korea and India, where some local Pay-TV operators have already started broadcasting in the new format
- In Japan, some operators such as Sky Perfect JSAT have already launched 4K/UHD channels in 2015-2016. Japan's Ministry of Internal Affairs & Communications announced that it aims at having 19-22 4K/UHD channels (operated by both FTA and Pay-TV broadcasters) on air by 2018 to focus on 8K deployment ahead of 2020 Tokyo Summer Games
- There have not been any noteworthy initiatives in Southeast Asia except from a few cases. First Media, an Indonesian Pay-TV provider, launched 4K/UHD in mid-2016



Other Spending Drivers



File-Base Workflows & Media Asset Management

 The transition to file-based technology is still relevant in Asia-Pacific. According to our End-User data, about 20% of our APAC respondents have transitioned less than 50% of their operations to from tape to file – "filebased workflows" ranks high in the tech priorities' index. This, along with digitization of workflows, is being adopted to make operations more efficient



Facilis Announces Strong Growth in Sales throughout **APAC Region**

Facilis Technology partnered with local resellers in India, Hong Kong and The Philippines to help Asian broadcasters such as ABS-CBN and Powervision TV migrate to non-linear workflows

Media asset management ranks very high as well in the tech priorities' index although primary priority remains multi-platform delivery – same in all other regions



www.theiabm.org

Telestream and Vizrt Announce OEM Agreement in Asia Pacific Region

Telestream and Vizrt have partnered to integrate MAM and transcode solutions for media customers in the APAC region



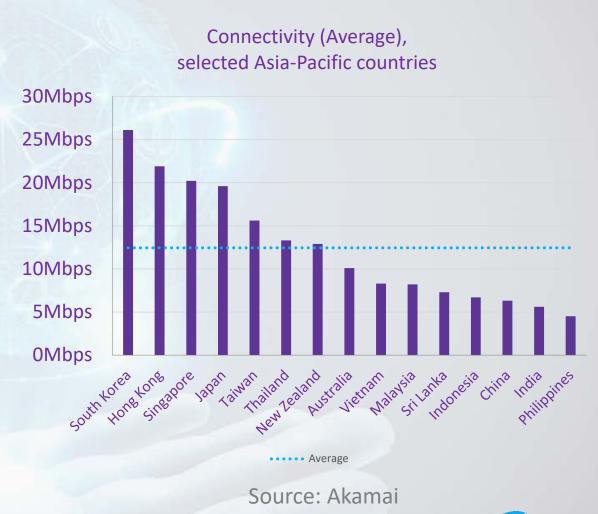


Connectivity in APAC

www.theiabm.org

- Poor broadband infrastructure and payment systems in less developed countries constitute a hurdle to OTT growth in APAC
- The situation varies country by country: countries where broadband speed is the issue and countries where penetration is a more serious problem
- In Thailand: average connection speed is 13.7Mbps but fixed broadband penetration is 30%
- Plan to make broadband more affordable to lowerincome households – ITU study finds that average monthly prices for an entry-level service cost between US\$5 to US\$45 with high speed between US\$17.6 and US\$500

IABM Industry Update Breakfast – Broadcast Asia 2017

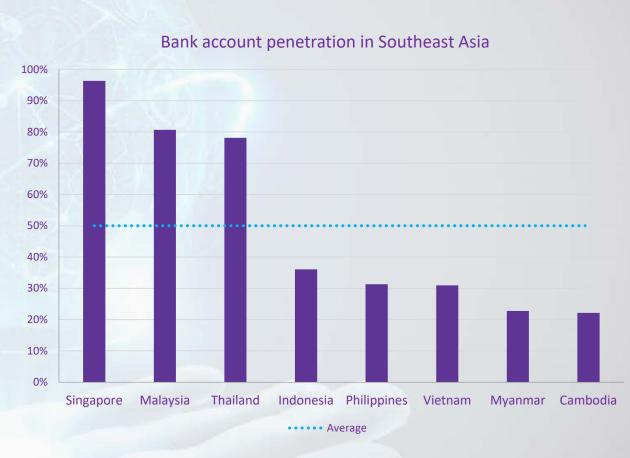






Financial sector development in Southeast Asia

- In most Southeast Asian countries, bank account penetration is very low
- Singapore is the exception 96% penetration, like Luxembourg
- The majority of people who have a bank account often do not engage with it:
- **Indonesia**: 36% bank account penetration and 26% debit card ownership. Only 1% and 8.5% of these accounts are engaged in credit card and debit card transactions respectively
- **Philippines**: 31% bank account penetration and 20.5% debit card ownership. Usage rates are 2% and 3.5% respectively



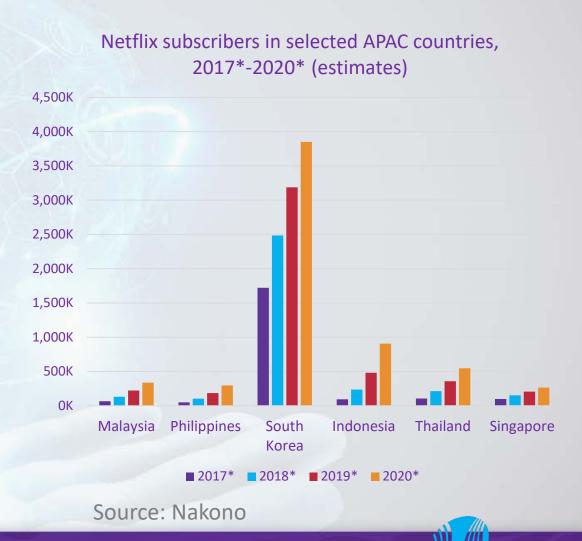
Source: World Bank





Netflix in APAC

- The arrival of Netflix in the region in 2016 (in all countries except China and North Korea) has prompted other OTT operators to ramp up their investment in local content – seen as Netflix's major weakness in this market
- Netflix is still an elite service in most emerging APAC economies 3m+ subs in the region at the end of 2016, mostly in Australia, Japan, Korea and New Zealand
- Content localization (not only subtitling & dubbing) is key to attract Asian viewers
- Amazon Instant Video launched in Singapore, Malaysia, Taiwan, Hong Kong, Cambodia, Indonesia, Philippines, Thailand and Vietnam at the end of 2016. In India, the service is included with Prime at no additional charge





Other New Media offerings

 Viu: launched by Hong Kong-based media behemoth PCCW in 2015. It boasts over 9m subscribers in over 10 countries and is Netflix's main competitor in the region. It offers both free and paid subscriptions



• **LeEco**: is the leader in the Chinese OTT market. It is a technology provider offering integration of its OTT subscription with its smart devices and TVs. LeEco acquired the rights for broadcasting important sports events such as the English Premier League and the World Cup



• Iflix: provides a paid subscription service offering in countries such as Malaysia, Indonesia, The Philippines and Thailand. In 2016, it entered a strategic partnership with the European Pay-TV operator, Sky

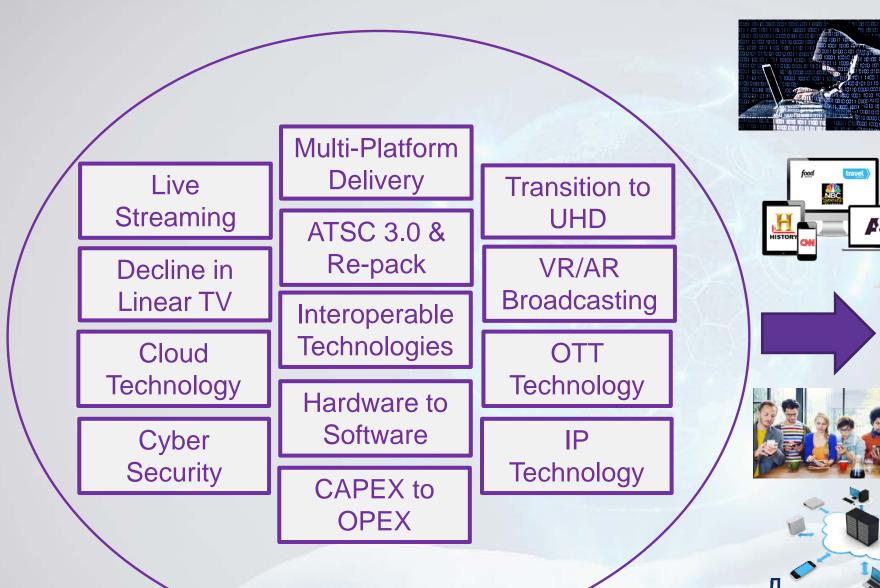


 HOOQ: is offered in Indonesia, The Philippines, Thailand and India. It is a video streaming service provider backed by Sony, Warner Bros. and Singaporean telco Singtel











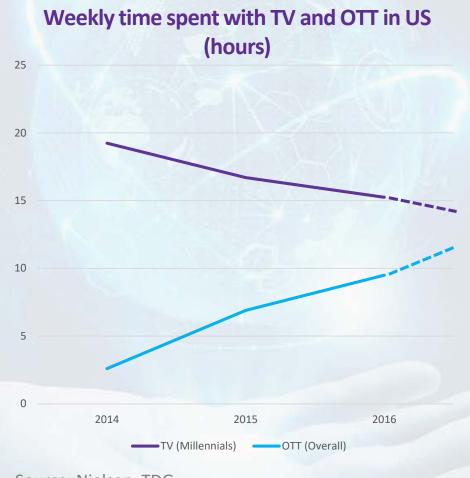






Despite live streaming challenges, OTT continues to grow

- Still difficult to support the massive linear audiences with live streaming although demand is growing
- Live streaming still represents a small share of overall live viewing
- However, time spent with TV is declining, particularly for younger generations. Consumption of OTT services continues to grow
- Online on-demand viewing acquiring increased importance



Source: Nielsen, TDG

The live viewership, it tends to be about 10% to 15% on All Access. It's the on-demand feature, I think, the content onthe-go is really what we're seeing significant usage, more than double that of what's freely available



Leslie Moonves, CEO, CBS

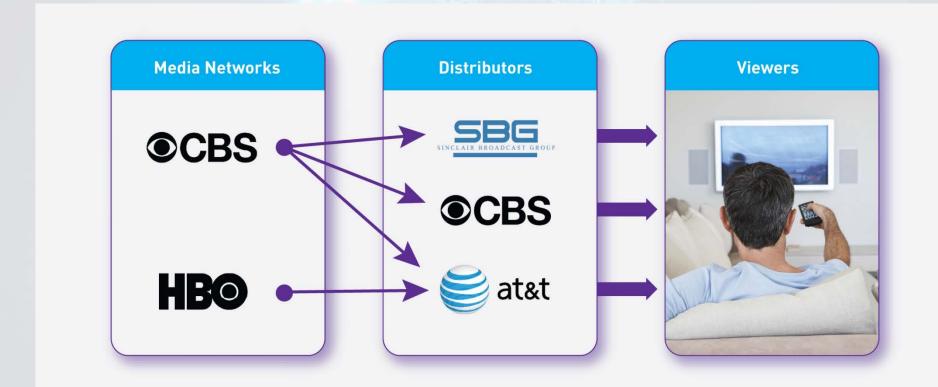








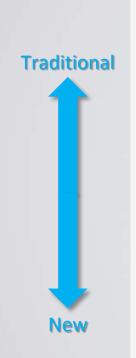
Traditional US Broadcast & Media Landscape







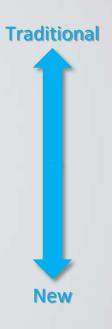
New US Broadcast & Media Landscape



IABM Industry Update Breakfast – Broadcast Asia 2017



www.theiabm.org









US OTT Media Landscape







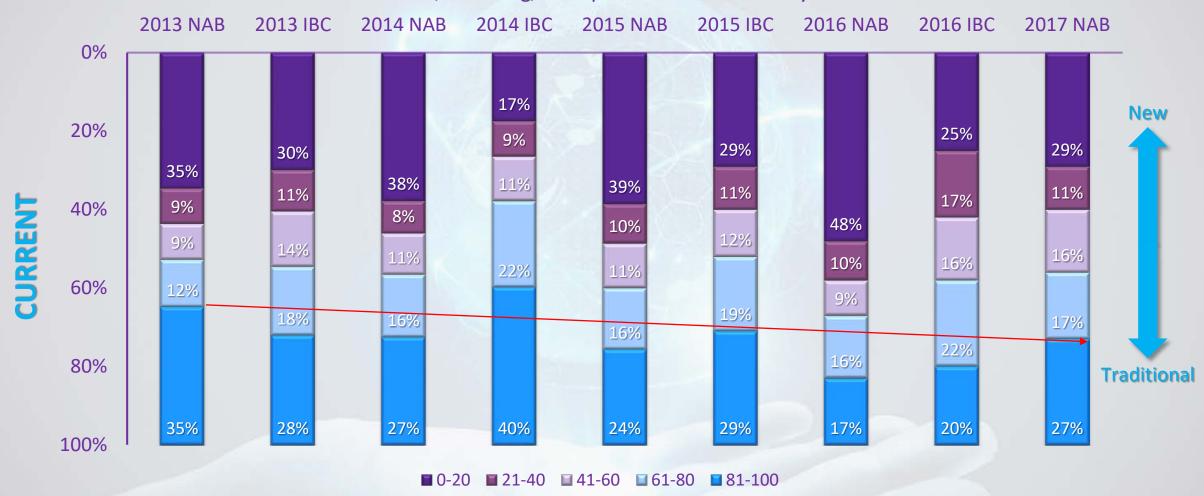








Percentage revenue from traditional broadcast operations versus new activities such as web, mobile, streaming, multi-platform content delivery?



www.theiabm.org

Source: IABM Pre-NAB Show 2017 End-User Survey

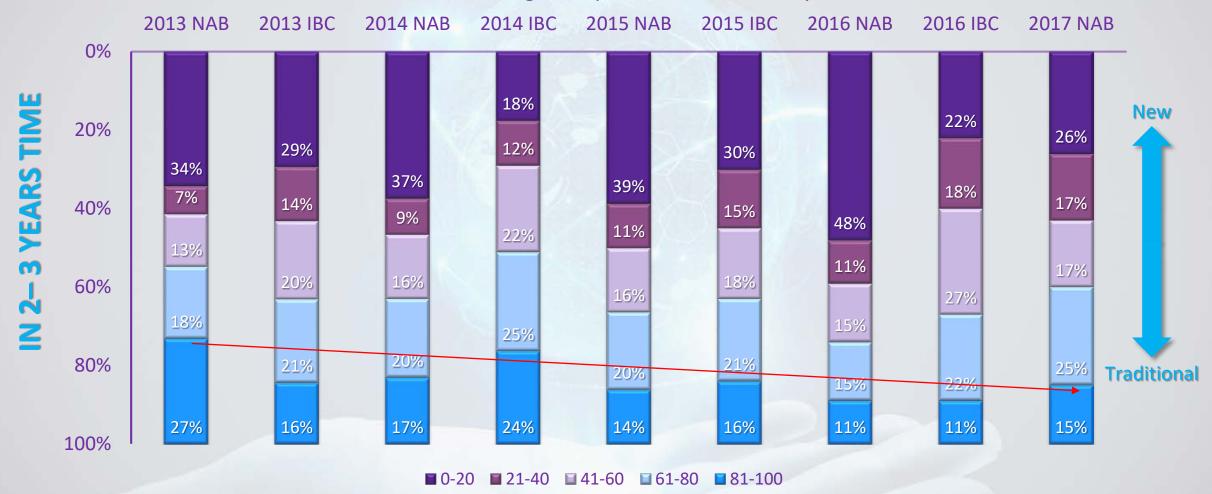
IABM Industry Update Breakfast – Broadcast Asia 2017







Percentage revenue from traditional broadcast operations versus new activities such as web, mobile, streaming, multi-platform content delivery?



www.theiabm.org

Source: IABM Pre-NAB Show 2017 End-User Survey

IABM Industry Update Breakfast – Broadcast Asia 2017

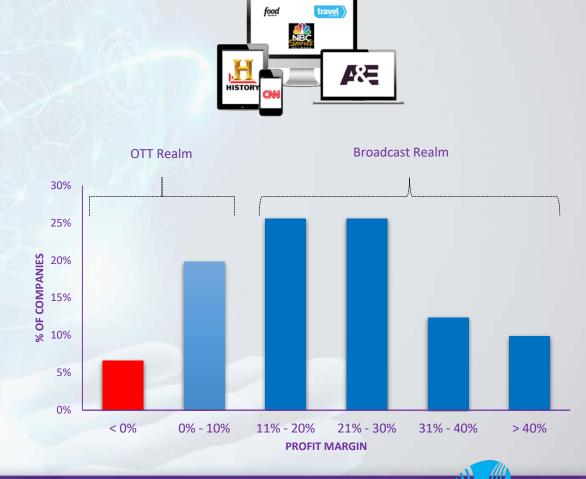






Transition to TV Everywhere & Automated Workflows

- Transition to multi-platform delivery continues to disrupt the traditional broadcast landscape
- Changing viewing habits have forced broadcasters to launch new media offerings
- Initially, assets needed to be prepared both for linear and OTT delivery → duplication of efforts, additional costs, additional complexities
- Transition to a unified approach to media workflows



Source: IABM End-User Index



IABM Copyright 2017

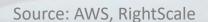


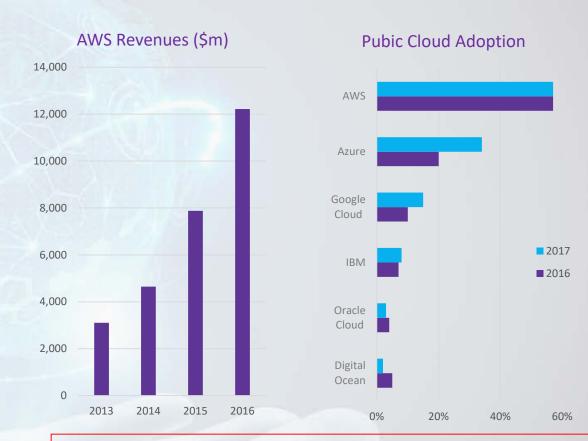
Cloud Technology



All in the Cloud

- Cloud customers can avoid high fixed costs by consuming services on demand
- They can benefit from the economies of scale (better utilization rates) that cloud service offerings provide and launch services 'on the fly'
- Some media workflows such as post-production and content distribution are already moving into the cloud
- Some major media technology suppliers are making the transition to cloud-based offerings this involves a transition from a product to a SaaS model





Public Cloud adoption is rising across the media spectrum although media & entertainment customers generally prefer a mixed use of cloud strategies



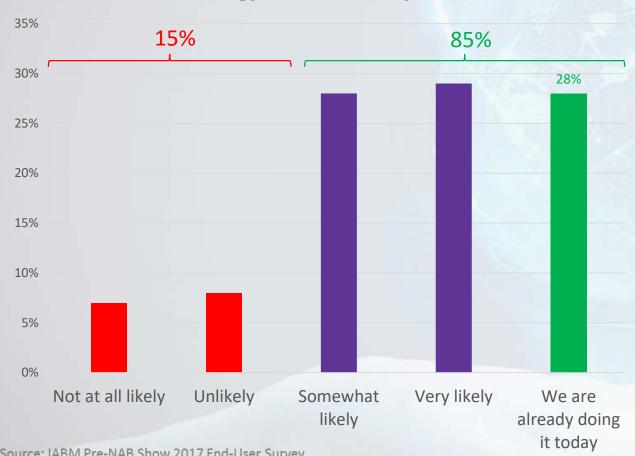




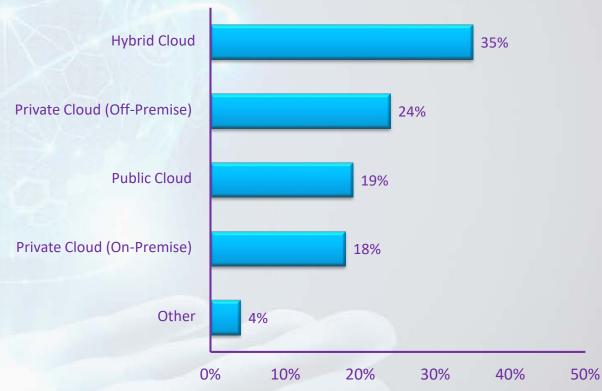
Cloud Technology



How likely are you to deploy some sort of cloud-based technology in the next 2-3 years?



What is the preferred deployment strategy for the adoption of cloud-based technology in your organisation?



Source: IABM Pre-NAB Show 2017 End-User Survey



www.theiabm.org



AI Technology

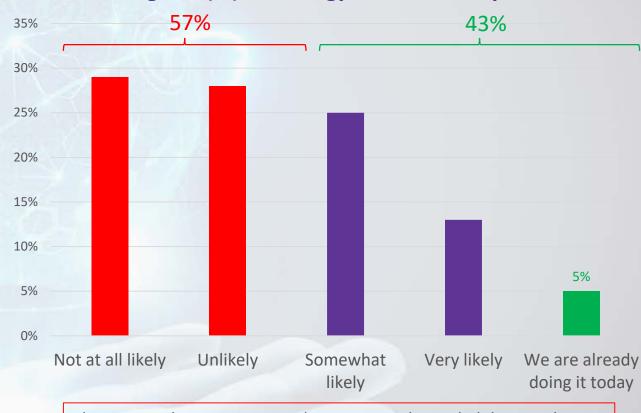


Al to the rescue?

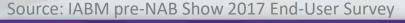
www.theiabm.org

- At CES 2017, AI was the most talked about emerging technology. It can help end-users deal with the increasing costs of online delivery
- Al can be defined as intelligent technology capable of replicating human learning and problem solving skills
- Al applications to the broadcast and media industry have been rare so far with only a few suppliers launching offerings that included some
- Major applications include: ad sales recommendations (Turner started using IBM Watson for this in 2016), recommendation engine (Netflix claims it saves \$1bn thanks to it), search and metadata labelling for media asset management and efficiency network management





The greater the organization, the greater is the probability to adopt Al









Cyber Security Check



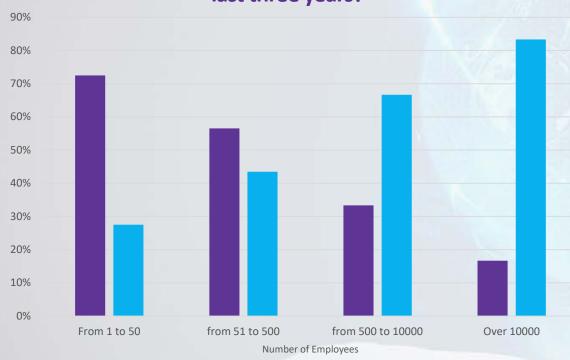
Hackers continue to threaten media companies

■ No

Yes

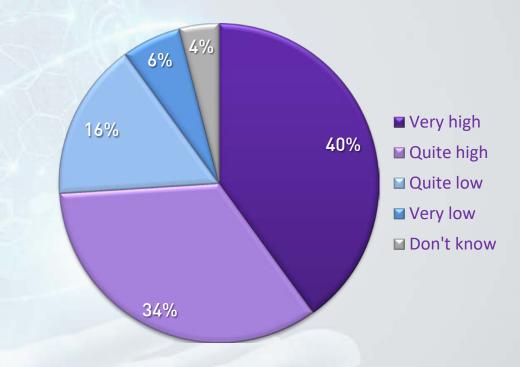
www.theiabm.org





"The default assumption is that everything is vulnerable" Robert Watson, Computer Scientist, University of Cambridge

How high or low a priority is Cyber Security in your organization's technology strategy?



IP-Networking, Cloud & Data Explosion create new vulnerabilities

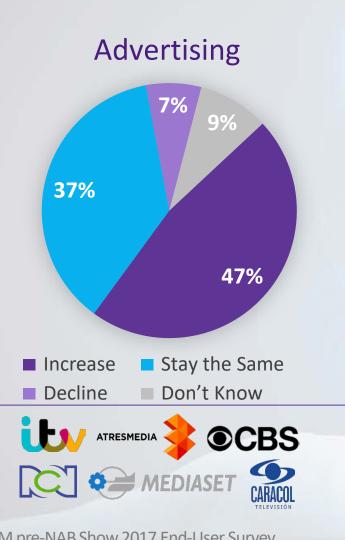


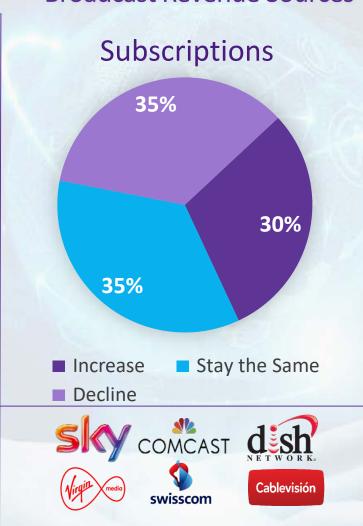


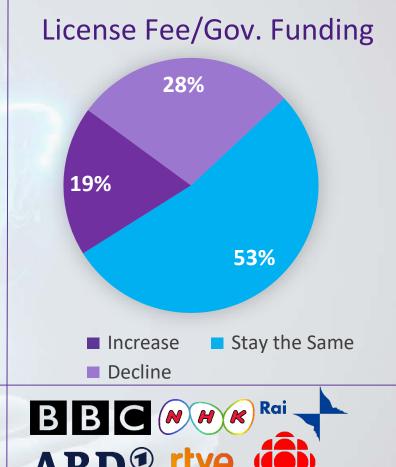
Customers' Performance



Broadcast Revenue Sources

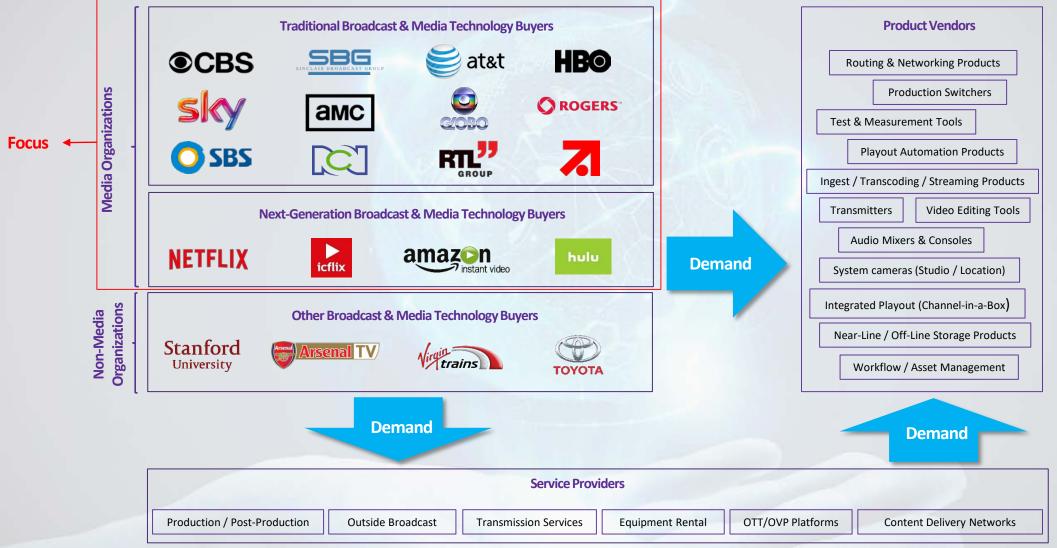




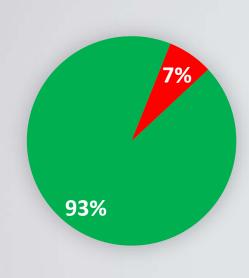


Source: IABM pre-NAB Show 2017 End-User Survey

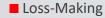


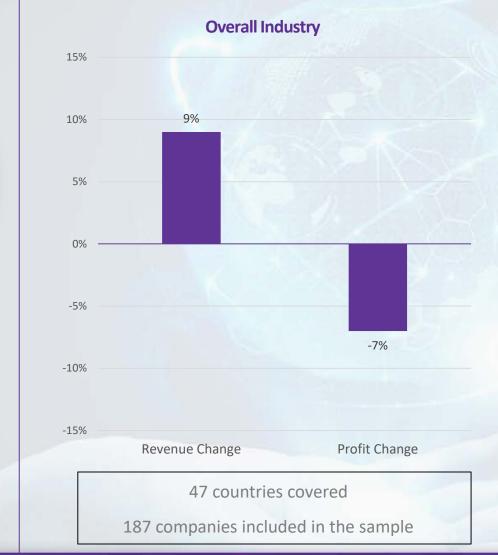


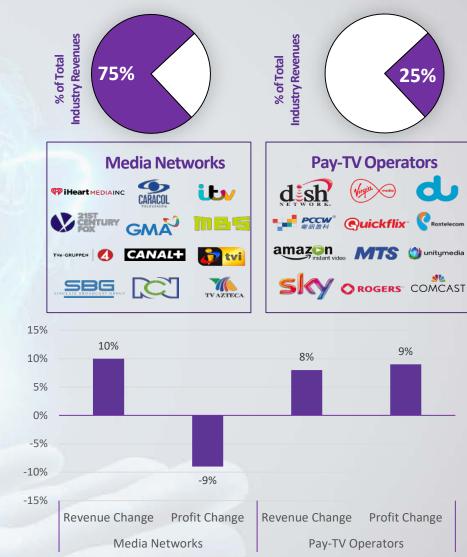




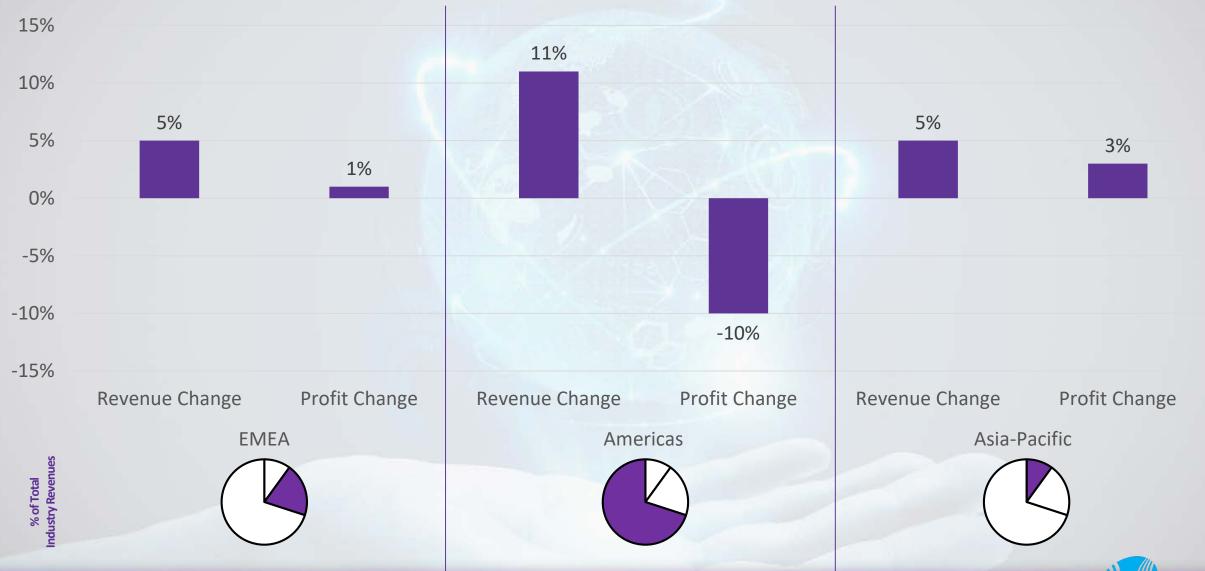






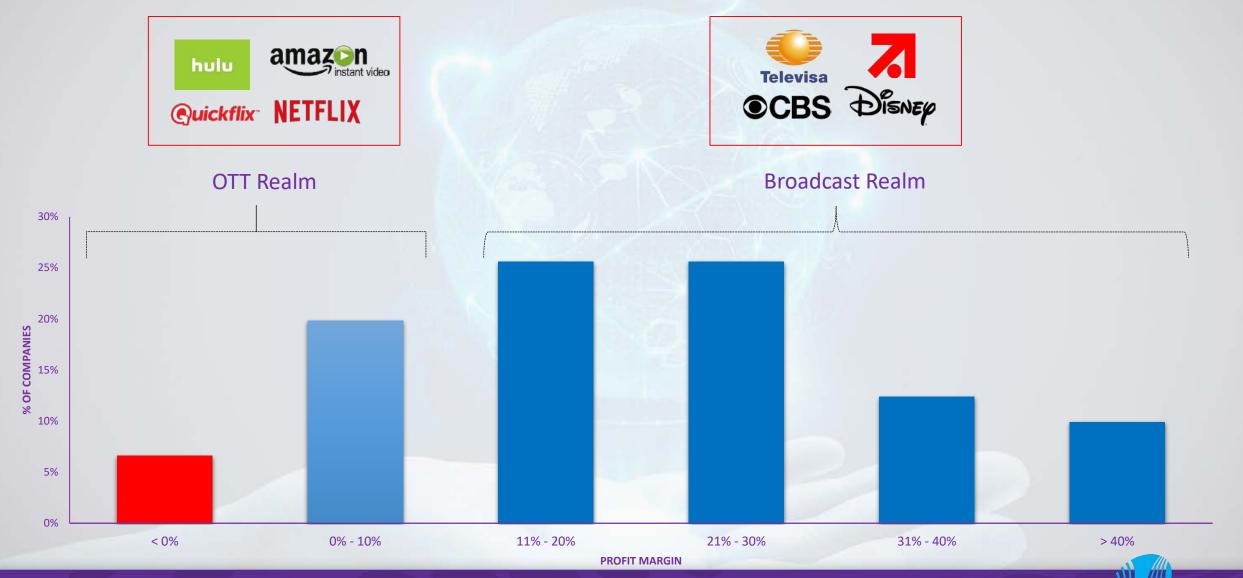








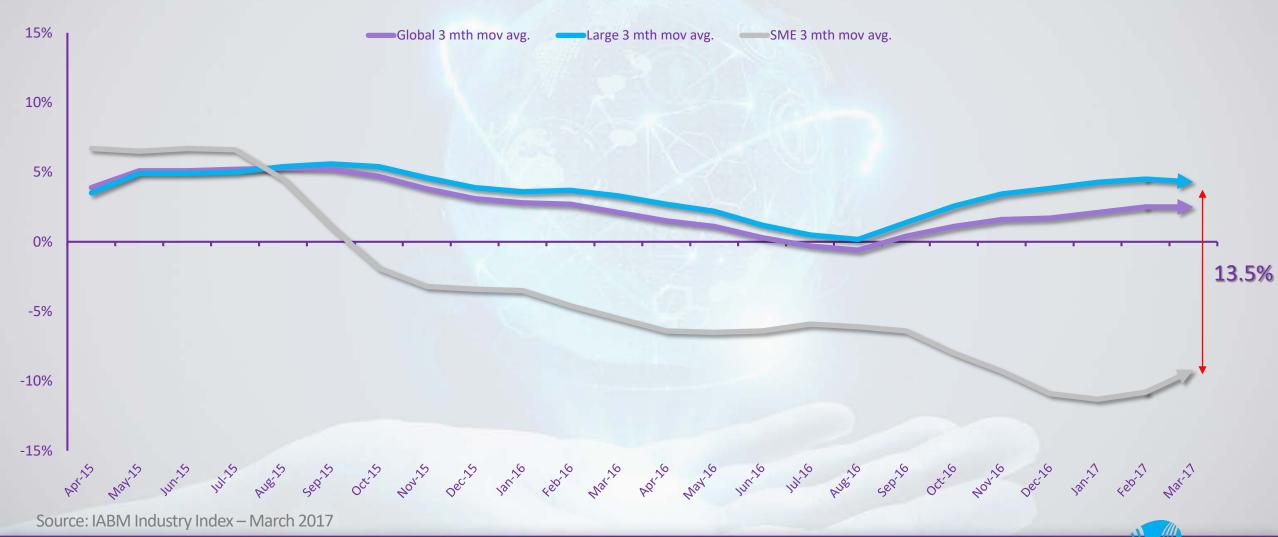




Suppliers' Performance



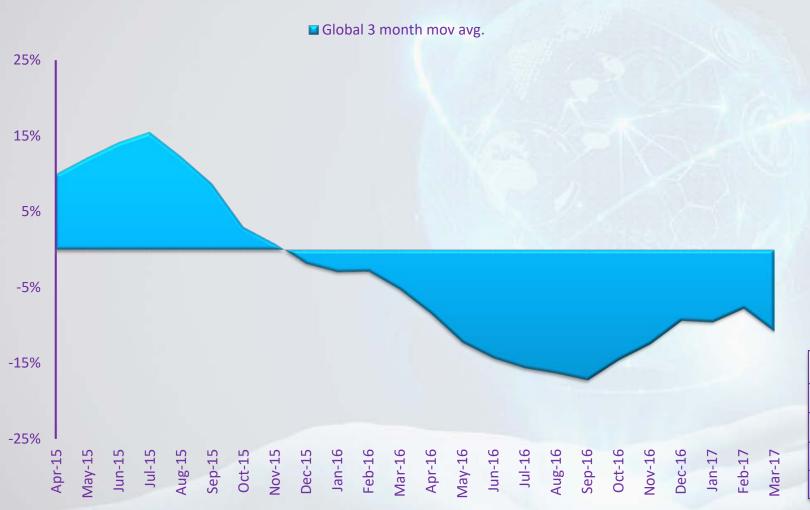
Year on Year Sales Growth, last 24 months up to March 2017

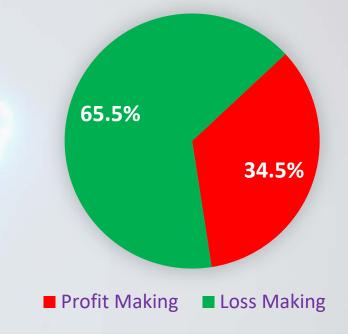


Suppliers' Performance



Profit Statistics: Profit Growth (left) & % of Companies in Profit and Loss (right)





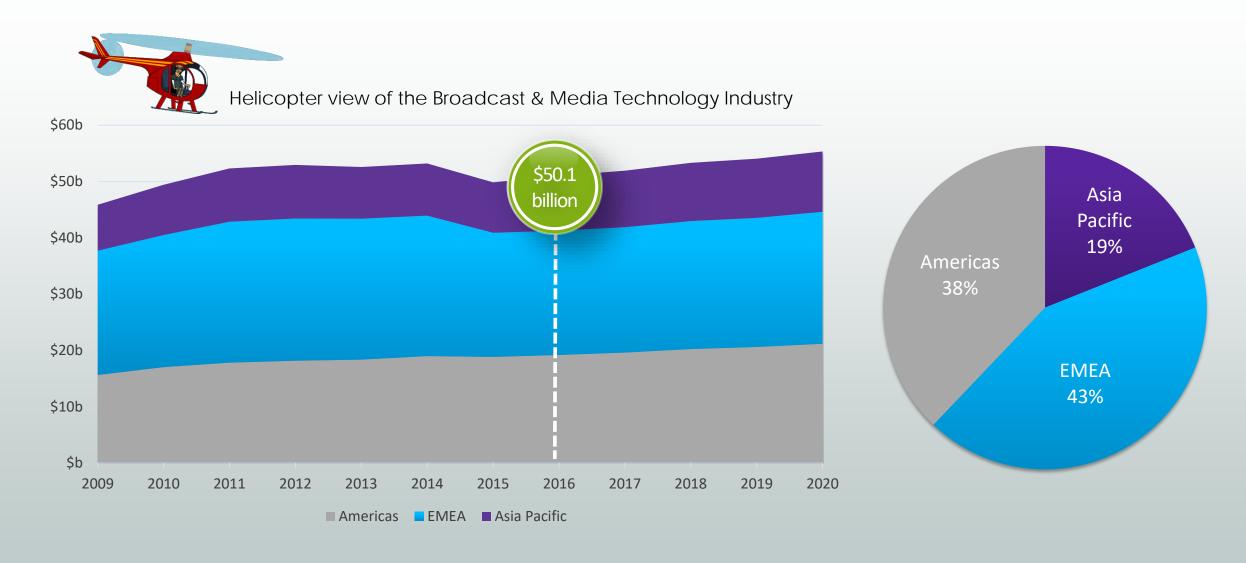
	Nov-16	Mar-17	Trend
In profit both years	53.4%	53.8%	↑
Moving from loss to profit	11.7%	11.7%	=
In loss both years	24.3%	22.8%	+
Moving from profit to loss	10.7%	11.7%	1

Source: IABM Industry Index - March 2017



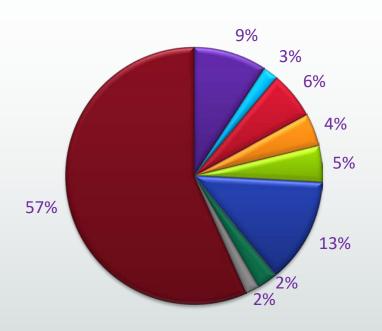
Total Market Size by Region





Total Market Size by Segment







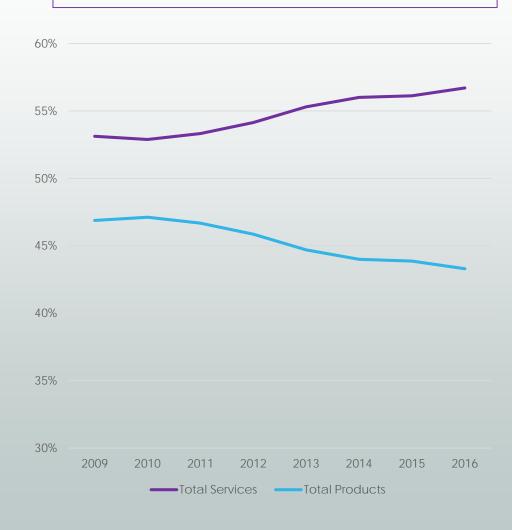
- Post production
- Content and communication infrastructure
- Audio
- Storage
- Playout and delivery systems
- System automation and control
- Test, quality control and monitoring
- Total Services

Total Services include the following categories:

- System Integration
- Consultancy
- Dry Hire / Rental
- Services to Live Production (outside broadcast, etc.)
- Post-Production, Facilities & Studio Rental
- Playout Facilities
- Content Delivery Networks (CDNs)

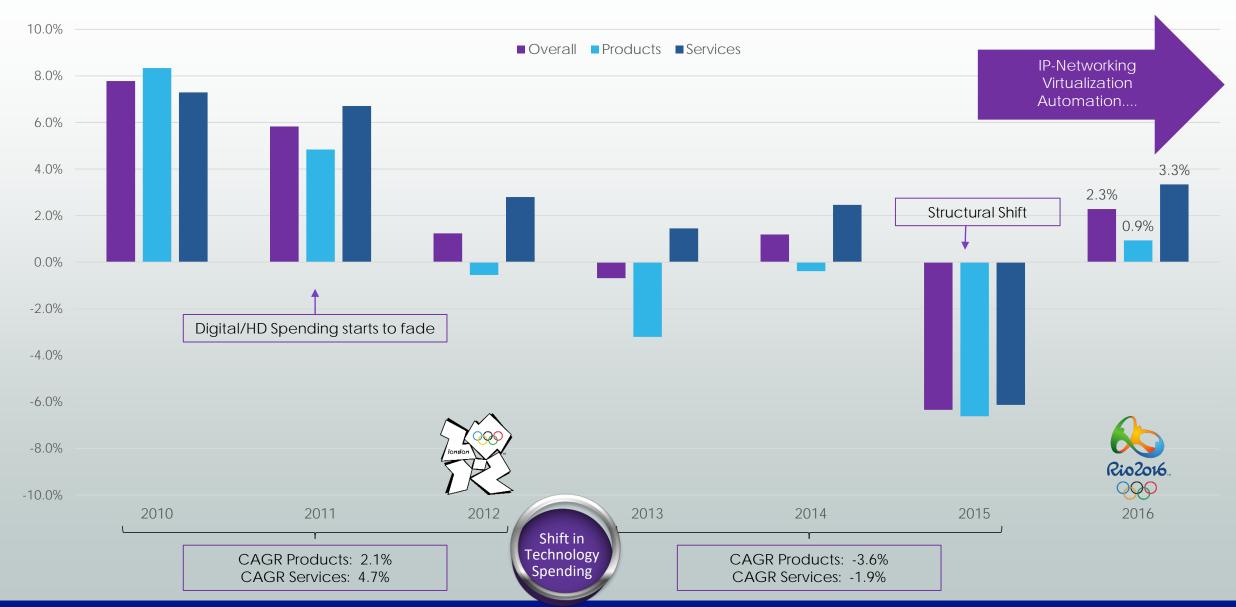
- Infrastructure as a Service (laaS): Bandwidth
 - Infrastructure as a Service (IaaS): Compute & Storage
- Commercial, Long-Form Content & VOD Delivery
- OTT Managed Service Providers
- OTT Platform and Component Providers
- Localization/Data Services
- Terrestrial Transmission
- Satellite Transmission

Services and Products as % of Total Industry Value



Product & Services Revenue Growth





Suppliers' View

2 Important Transitions



From Hardware to Software

- Many traditional broadcast and media technology suppliers still rely on hardware as their primary source of revenues
- With end-users moving to software-defined infrastructures built on COTS equipment, bespoke hardware revenues are under pressure
- Traditional suppliers are therefore embarking on a difficult transition from purpose-built hardware to delivering software running on general-purpose equipment

IABM Industry Update Breakfast – Broadcast Asia 2017

From CAPEX to OPEX

- Broadcast and media technology users have traditionally relied on a CAPEX model with product upgrade cycles of up to 10 years
- The take-up of cloud computing in media & entertainment is favoring the transition to an OPEX model where costs flexibly vary on the basis of user demand
- Subscriptions guarantee steadier cash flows (and shorter product cycles) but suppliers are used to finance their high R&D expenditures with large money influxes (typical of licence fee/hardware model)

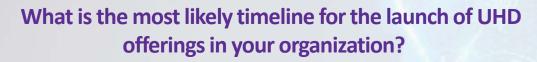




State of 4K/UHD Adoption



4K/UHD Adoption – A Timeline



Only 22% plan to launch UHD offerings in the next 3 years



"Only possible solution seems now delivering UHD (With HDR) through web. No terrestrial possibilities seems viable in several years" Broadcast Network, Norway

"Depends on ATSC 3.0" Television Station, US

"Most providers don't have the bandwidth to supply 1080p to the consumer, let alone 4K/UHD to the consumer" Cable Network, US

www.theiabm.org

"I can continue with my 720 and add more sub channels (more income) or take all the bandwidth for UHD programming that is not currently produced?" Television Station, US

"In (late) 2018, UHD broadcasting will be started as commercial service" Television Station, Japan

Source: IABM Pre-NAB Show 2017 End-User Survey



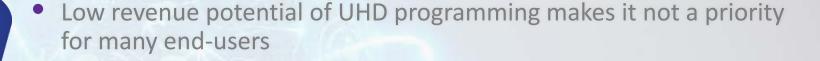


State of 4K/UHD Adoption



4K/UHD Adoption

We are seeing real signs of life for ultra
HD or 4K, and high dynamic range
channel deployments. Despite the late
arrival of 4K, Harmonic continue to invest
in enabling R&D and ecosystem
integration work, and consequently we
are well positioned to take advantage of
the 4K wave



- ATSC 3.0 could be a catalyst for the transition to UHD operations
- Infrastructure upgrade necessary to deliver in the new format. Most prefer IP or Hybrid SDI-IP solutions over 12G SDI and Quad-3G SDI



Patrick Harshman
CEO
Harmonic

 4K/UHD big in Japan and South Korea with many broadcasters already delivering content in the new format







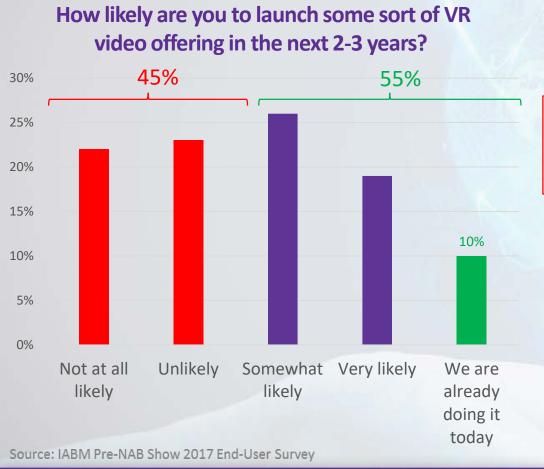




State of VR Adoption



Doubts remain over VR experience & business models





www.theiabm.org

Adoption Challenges

- Cost premiums remain high
- **Business** models supporting it are still unclear
- Doubts over VR experience: isolation, VR sickness as well as customers' potential reluctance to play an active role in storytelling







Transition to IP

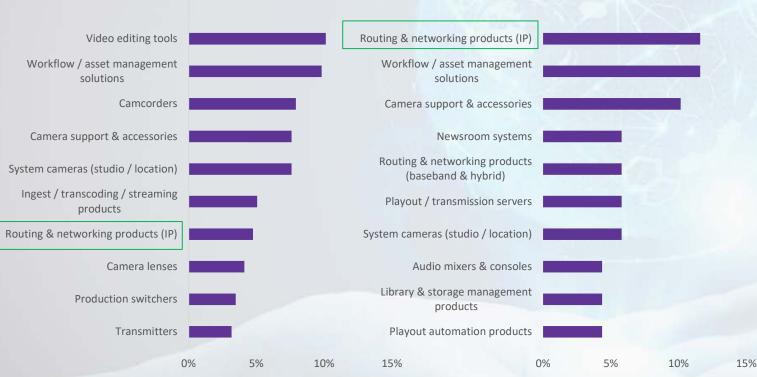


Transition to IP Infrastructures

Of the products / solutions that you plan to purchase over the next 12 months, which is the most important priority? (Top 10)

All Respondents

Large Broadcasters



We were excited to win a significant new IP project at one of the major networks and I think that's evidence that our customers are beginning to get more comfortable making commitments on new technology. Most of the major networks, most of the major broadcasters, have been waiting to make their investments once they got comfortable that there was an IP solution that was open



John Stroup CEO Belden





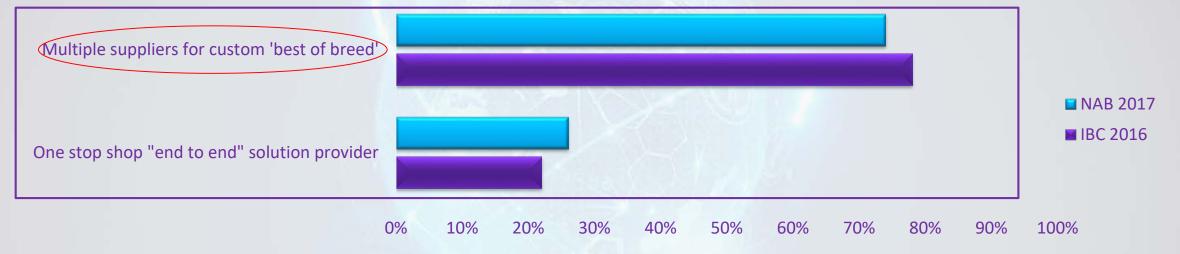


The Importance of Interoperability



Never, ever want to be locked in to one vendor Customer preferences & Interoperability

Customers still prefer 'best-of-breed' solutions



Therefore, interoperability is important for most of them



www.theiabm.org

Source: IABM pre-NAB Show 2017 End-User Survey



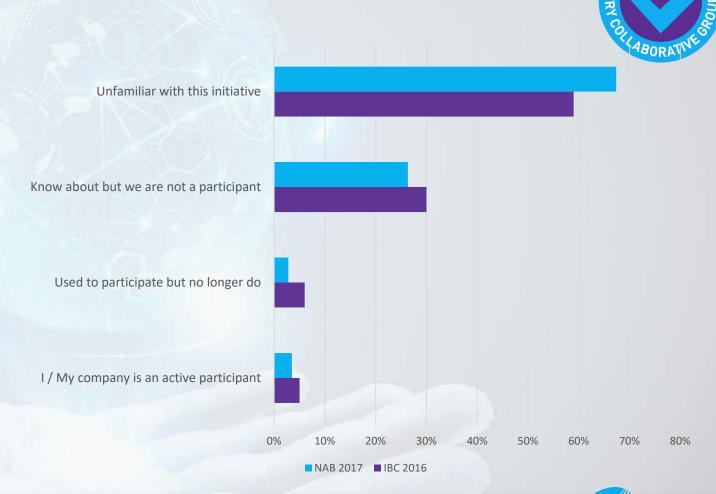


The Importance of Interoperability



How familiar you are with the various interoperability initiatives?

- 'Best-of-breed' solutions presents the challenge of interoperability between different technologies
- Interoperability is costly: according to Avid Technology, the cost associated with making technologies "talk to each other" is equal to about 25% of the total solution cost
- Most end-users (67%) are unfamiliar with interoperability initiatives. This is higher for North American respondents
- However, several interoperability initiatives have made notable improvements. AIMS had 70 total members at the end of March 2017, up from 30 in March 2016



www.theiabm.org

Source: IABM pre-NAB Show 2017 End-User Survey

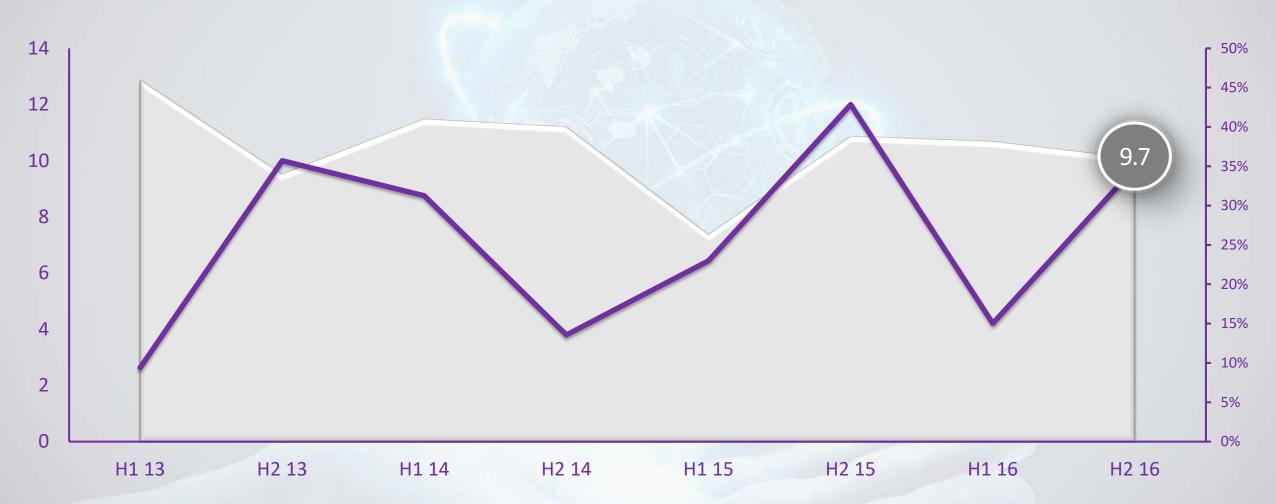




Suppliers' Confidence is up



IABM Confidence Ratio



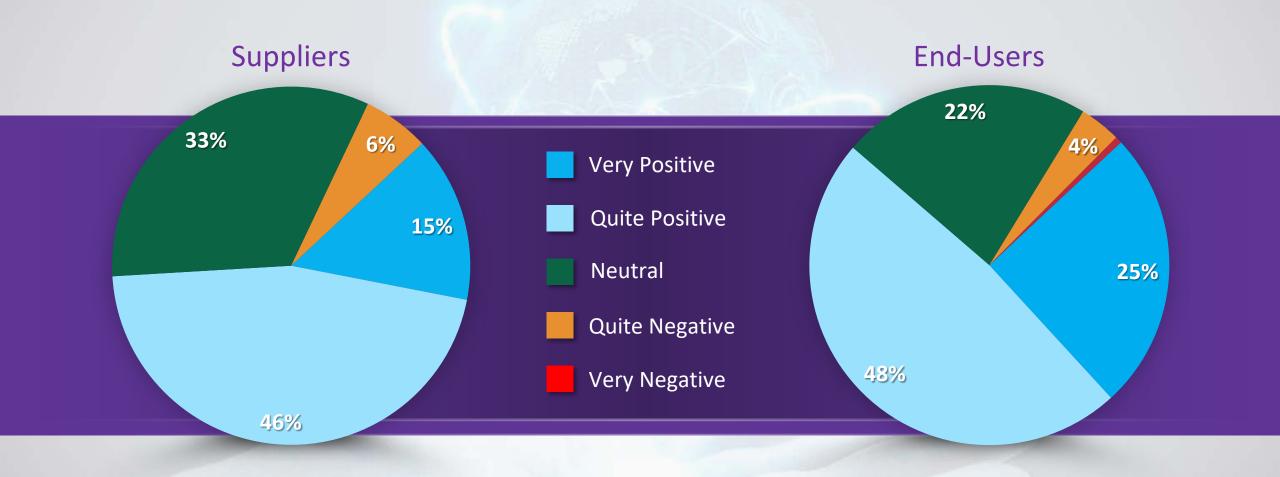
Source: IABM Industry Trends Survey – December 2016



But Customers remain more confident



Outlook for the business environment, Suppliers and End-Users



Source: IABM pre-NAB Show 2017 End-User Survey, IABM Industry Trends Survey – December 2016





