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Entertainment & Internet

Needham Insights

Providing in-depth analysis of significant industry issues

Thought Leader Series

The Future of Media: An Epic Battle

We have funded or followed visionary billionaire entrepreneurs in the media space for nearly three decades and never has the outlook been so intriguing. It is clear to us what happens next, but the unintended consequences and ultimate outcome of the impending battle is anybody's guess.

Challengers. We expect each of the dominant US consumer-facing internet platforms to spend billions of dollars in 2018 to create premium video content in an effort to take revenue, viewers, and time away from the incumbent TV and film content creators and distributors. Because these companies have built their fortunes by aggregating consumers (FB), information (GOOG), products (AMZN) and apps (AAPL), we label them the Internet Aggregators. Their competitive weapons are significant. They are much larger, have deeper pockets, are held to different valuation standards by Wall Street (implying a lower cost of capital), have global distribution and revenue footprints, are dominant in mobile, and they are willing to subsidize losses for a decade, as YouTube has done. More ominously, they are fast movers with agendas that have little to do with ecosystem health, as evidenced by the value destruction of several historical media ecosystems. We believe that their war will ultimately be against one another, but that the TV and film ecosystems represent a key strategic battleground in that end game.

Champs. From an over-the-air US TV industry generating less than $10B in revenue in 1980, the US TV ecosystem spent the next 35 years *together* building one of the most successful US consumer products of all time: the linear TV bundle. At its peak reach in 2010, 88% of US households paid a subscription fee to the TV ecosystem for access to 250+ Pay-TV channels. Although mega-bundle Pay-TV subscribers are now declining, revenue has continued to rise, reaching about $170B in 2017. The US TV ecosystem has proven robust because it has hundreds of frenemy corporations negotiating (a core competence) unique long-term contracts with each other that forward their own best interest. Whenever any company gets an edge, others follow. Also, it's an ancient ecosystem so specialization is high and successful companies had to out-compete every company that came before.

What media stocks should investors own in 2018? We recommend: a) CBS, based on its OTT assets and US election advertising upside in 2018; b) FB, a mobile ad-driven juggernaut with powerful ad targeting capabilities built on top of a world-class consumer aggregation platform; and c) ATVI and/or EA, based on growing TAMs, new revenue streams, higher margins and eSports. In mid-cap, we recommend: a) ROKU, which is an aggregator of OTT channels in the US; and b) WWE, which has successfully made the transition to OTT and owns the wrestling super-fan market globally.

Relevant disclosure information begins on page 30.

Internet Aggregators are coming. Each Internet Aggregator has announced it will spend $3-6B in 2018 to create premium video content. We believe this will be TV series type content based on: a) Facebook has found that audiences would rather watch multi-episode video shows than one-off videos as Facebook series have twice the average viewing time of non-serialized videos, according to FB; b) Three Mashable series, "Sharp Science," "Bad Days" and "Scamalot," have an average watch time three times longer than non-serialized videos, according to Mashable; and c) Attn reported that its monthly video series "America Versus" (compares U.S. policies to other countries) averages 30x longer engagement than what Attn gets for its one-off Facebook videos.

Internet Aggregators (i.e., Apple, Amazon, Facebook, Google) have several competitive advantages in the fight for video economics, each of which we discuss in this report:

- Enormous market caps;
- High valuations (i.e., low cost of capital) and strong free cash flow from their core business;
- Deep pockets and patience with losses; and
- Smartphone dominance—and smartphone viewing is where consumers are going.

Netflix. We do not include Netflix as an Internet Aggregator in this report. Why not? Because the Internet Aggregators organize long-tail assets, suggesting a power asymmetry with the platform having monopoly power compared to what it aggregates. In contrast, NFLX was built on contracts with the six major US studios, each of which is taking its content away from NFLX to build their own OTT channels that will directly compete with NFLX. Additionally, NFLX must access capital markets to fund its $2-3B of annual cash losses, suggesting it doesn't have the balance sheet strength to survive in direct combat against the content conglomerates, many of which have investment-grade balance sheets.

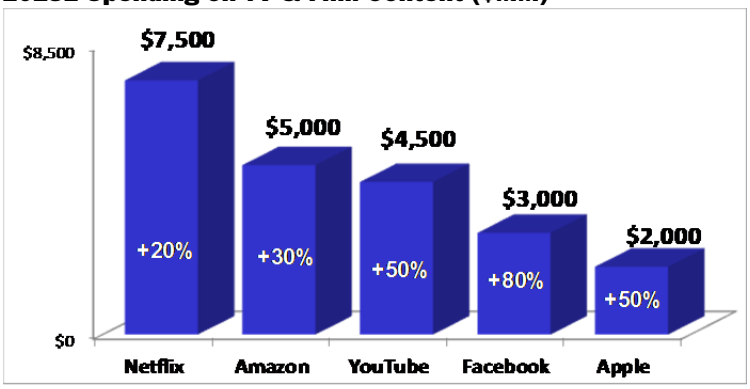
Champs (i.e., incumbent US TV ecosystem companies) have several impressive competitive advantages in the fight for video economics, each of which we discuss in this report:

- **Engagement.** Enormous time spent daily with linear TV content.
- **Dual Revenue Stream Business Model.** TV generates $170B of revenue, about 40% from advertising and 60% from subscription, at a 20% profit margin. This implies $136B is spent each year on TV and film content plus overhead. We believe it will be nearly impossible for any single revenue stream competitor to unseat a dual revenue stream ecosystem owing to enormous implied losses.
- **Cluster Theory** suggests that Hollywood and Silicon Valley are global winners in part owing to their geography. Cluster theory jettisons the notion of competitive advantage as a concept relating to a single company and instead redefines competitive advantage based upon the geographic location of an ecosystem of companies, which implies they cannot be moved.
- **TV Everywhere** adds value to the perceived price/value relationship of the mega-bundle.
- **Mega-Bundle Value**. The high monthly price of skinny bundles and individual OTT channels for very limited programing and/or access underscores the value of the 250+ channel mega-bundle.
- **Confusion.** Clutter created by a la carte choices confuses consumers, resulting in a fear of making a bad decision. This leads to inertia, which means consumers stick with the mega-bundle longer.
- **Ad Growth.** US TV advertising is expected to grow, adding about $1B in each of the next 5 years, and reaching nearly $80B by 2020. As ad blockers threaten the ad-driven internet sites, TV is a sure way for brands to reach audiences with their brand message via full screen sight, sound and motion, and no fraud thanks to independent third-party measurement by Nielsen or comScore.

Challengers – Internet Aggregators Are Coming

We expect each of the consumer-facing Internet Aggregators to spend money on premium long-form (i.e., over 10 minutes) digital video content in 2018. Spending on premium (i.e., NOT user generated) content achieves several goals for them simultaneously. One goal is to elongate time spent (i.e., engagement) of the traffic that comes to their sites through their core business. The longer consumers stay on a site, the greater the options to generate revenue from that consumer in some way. Additionally, the Internet Aggregators are also trying to add a new revenue stream to their core business by taking a share of the $170B annual revenue from the US TV ecosystem. Finally, the more differentiated their site, the deeper their moat and protection from the other Internet Aggregators. Hit TV and film content are evergreen annuity stream differentiators.

2018E Spending on TV & Film Content ($MM)



Source: Companies, Needham & Company, LLC research.

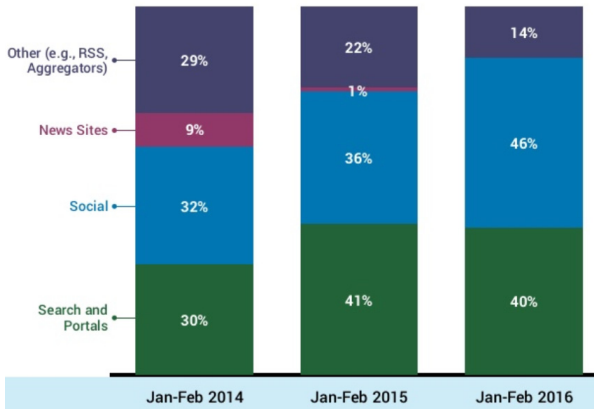
Why Does It Matter? Nightmare Case Studies from History

Music. The iPod was launched in 2001 and the iTunes store began offering all songs at $0.99 each in 2003. Between 2004 and 2014, US recorded music revenue halved from about $14B to about $7B as iTunes "unbundled the album." Content created by the incumbent music industry helped drive rapid consumer adoption of iPods (which created value for AAPL) at the cost of enormous value destruction. Our research indicated that after spending $3.50, consumers generally opted to pay $9.99 to buy the entire digital album of 11-14 songs. If hits were priced at $2-3 rather than $0.99, this would have driven more $10 digital album sales and less value destruction (our view). The US Recorded Music industry did not report positive revenue growth until 2016, 12 years later.

News. In 2009, both AP and NewsCorp accused Google of stealing news and not paying for it. Between 2008 and 2017, the number of US newspaper employees halved (with similar economic trends) from about 350,000 to 175,000 as news referral traffic pivoted away from news sites and AP toward search (GOOG) and social (FB). Between 1Q14 to 1Q16:

- Search and Portals grew from 30% of traffic to 40% of news traffic.
- Social traffic grew even faster, up from 32% to 46% of news traffic.

US News Referral Traffic by Source



Source: Activate, Internet & Media Spend report, 4Q16.

Some could say that the damage done by FB's fake news in 2016 was a higher tax on democracy than GOOG's value destruction of the newspaper business ecosystem.

Why Now? Challenger Motivations

As growth in their core business has slowed, each Internet Aggregator has entered aspects of each other's business. We believe that ultimately the Internet Aggregators must destroy each other to "win," but in the near term their offensive focus has shifted to elongating time spent (i.e., engagement length) of the copious traffic that comes to their core site, and their defensive focus has shifted to finding something that the other Internet Aggregators do not have (and cannot get) that attracts and retains consumers and builds sustainable competitive advantage. Taking a portion of US TV's $170B of revenue is also a goal. Owning hit long-form video content achieves all three objectives. According to Activate, Google is the best positioned Internet Aggregator:

- **Google** is the only platform that has a presence in every category of the consumer journey: access, discovery, and consumption.
- **Amazon, Apple and Microsoft** each have 3-4 categories of weak or missing skills.
- **Facebook** has 7 weak or missing skills.

5 Dominant US Internet Platforms—Suggests A War Is Coming

Source: Activate, Internet & Media Spend report, 4Q16.

Our Outlook Is Different

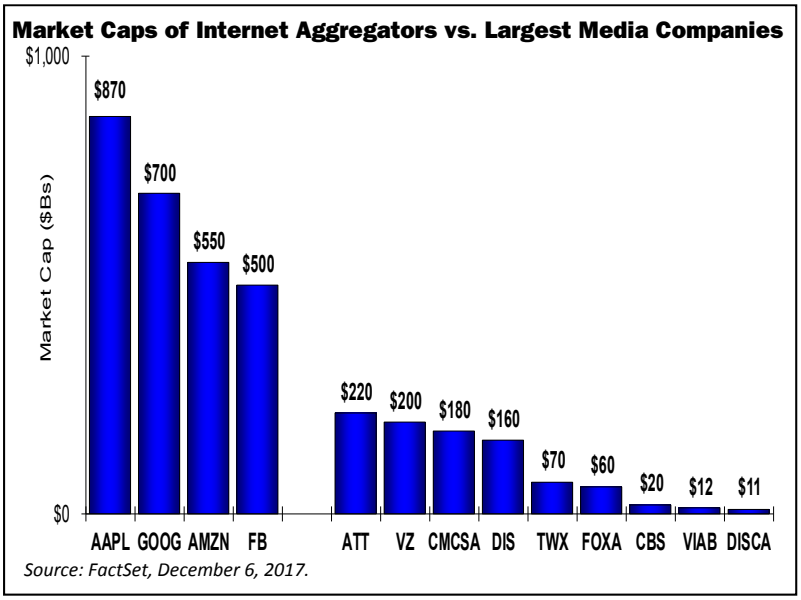
How many boxes each Internet Aggregator checks ignores data points we have so far that suggest how successful each Internet Aggregator will be in the long-form premium online video business.

- **Google.** We are less threatened by GOOG's disruptive power because YouTube has had 12 years as a monopoly and remains sub-scale and unprofitable. Big Dog competition is coming and YouTube's choices over a decade suggest they are slow learners and poor listeners.
- **Apple.** We are most interested to watch AAPL. In 2Q17, AAPL hired the top two Sony TV executives to lead its charge into original video content. As the largest company in the world, AAPL's resources, global distribution and tech talent are second to none. AAPL's iOS ecosystem aggregates the wealthiest 10% of consumers globally, and since AAPL is a marketing-centered organization, their premium brand generally comes at a premium price point and their marketing of new video content should be competent.
- **Amazon.com** is clever and cunning. Launching its own ad-supported OTT service and tying any 30-second TV ads to subsequent purchases made on the AMZN website using Alexa hardware in the home would close the loop between a TV commercial and actual purchase, which is *the* Holy Grail for advertisers. It would give AMZN two revenue streams from premium online video (meaningful valuation positive), plus drive upside for its core business.
- **Facebook** is aggregating users' videos to share among friends, but FB's mission statements (i.e., building communities and/or making the world more open and connected) only marginally benefit by funding long-form premium video. With over 95% of FB's usage on a smartphone, we expect FB to concentrate on creating premium short-form (1-5 minutes) videos.
- **Netflix.** We do not view NFLX as a meaningful player on either side of this battle.

Challenger Advantages – Size

This chart shows the enormous market capitalizations of the Internet Aggregators compared to the largest companies in the US TV ecosystem, and makes clear that the next wave of competitors have scale advantages unmatched by any incumbent TV competitor.

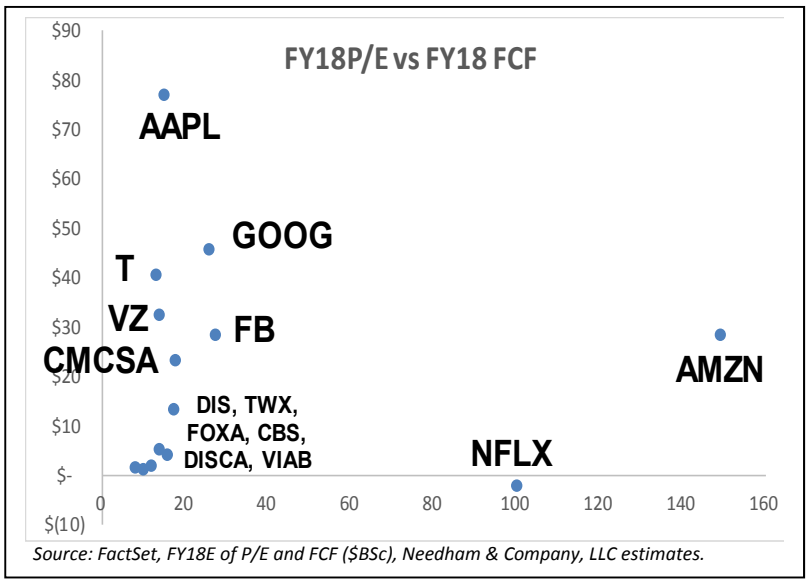
- **Internet Aggregators** market caps range from $500B to $870B.
- **TV.** This compares to the TV content makers at $11-160B each and the largest US TV distributors (cable/satellite/ telco) at $180-220B each.
- **Regulators.** When the DOJ refuses to allow ATT to buy TWX, it is ignoring the impending competitive threat from companies much larger than ATT, even if TWX was included in its owned asset portfolio.



Source: FactSet, December 6, 2017.

Challenger Advantages – High Valuations and Free Cash Flow

Based on FactSet consensus estimates for 2018, the Internet Aggregators' P/E ratios (i.e., valuations) and their annual free cash flow (FCF) are much larger than any of the US TV ecosystem competitors. By implication, Wall Street applies lower hurdle rates (i.e., a lower cost of capital) to the Internet Aggregators thanks to their global revenue footprints and their relatively low capital spending compared to US TV distributors or content creators.



Source: FactSet, FY18E of P/E and FCF ($BSc), Needham & Company, LLC estimates.

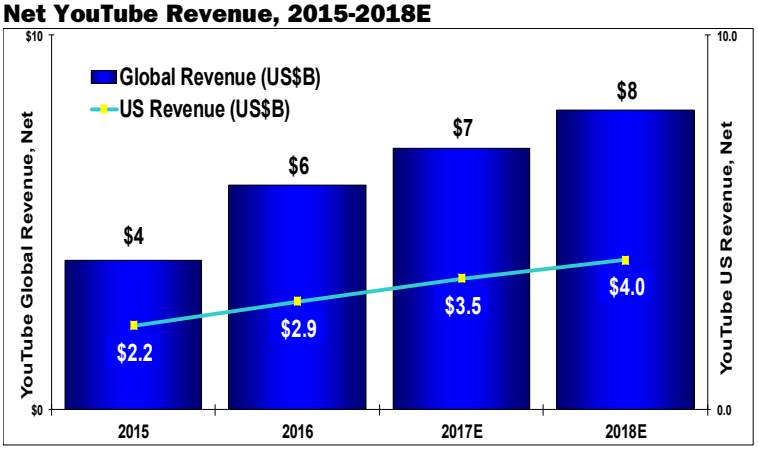
These FCF and valuation advantages imply that the Internet Aggregators have longer staying power to compete with the US TV ecosystem. Additionally, if they bought any of the TV ecosystem companies, it would be anti-dilutive.

Challenger Advantages – Deep Pockets & Patience

Owing to the enormous success and FCF characteristics of the Internet Aggregators, they can enter a business and lose money for a decade while being funded by the core business, if they believe the strategic goals are important enough.

For example, Google bought YouTube in 4Q06 for $1.65B. YouTube's user numbers are impressive with 1.3B global users (including 80% of 18-49-year-olds) watching 5B videos each day from 300 hours of views uploaded every minute, according to Google. We note that 80% of views are from outside the US and 20% are from the US.

We believe YouTube has never made money, despite its 11 years as the dominant online aggregator of video content. YouTube's net US ad revenue was about $3.5B in 2017. Since about 50% of YouTube's gross revenue is paid out to content owners, this implies that YouTube's gross US revenue in 2017 was $7B, which feels small to us considering that US TV advertising revenue was about $70B in 2017.

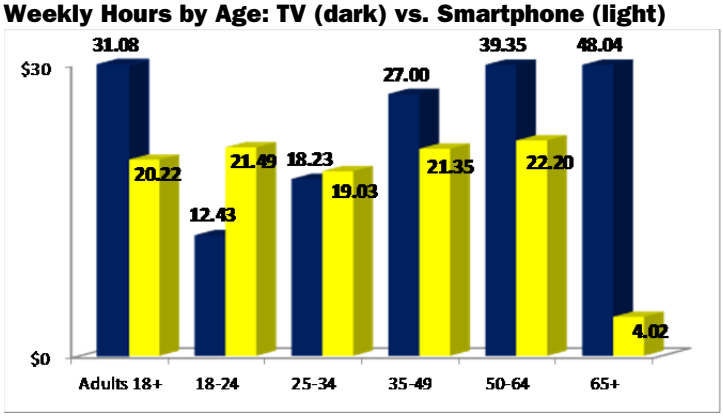


Source: Company documents, eMarketer, Needham & Company, LLC estimates.

Internet Aggregators Dominate Smartphones (i.e., Young Consumers)

Each of the Internet Aggregators has a strong presence on smartphones, whereas most of the incumbent TV competitors do not. Over the past decade, the most important shift (our view) in media has been consumers' shift toward smartphone screens. In 2Q17, according to Nielsen:

- US adults over 18 used their phones 20 hours, which is 66% of the 31 hours of TV they viewed, despite the fact that smartphones were introduced just 10 years ago. This signifies rapid consumer adoption.
- Smartphone usage was highest and TV viewing lowest among 18-24-year-olds. This demo spends about 90 minutes more (5% longer) on smartphones than average and 60% less time watching the TV screen. As this young demographic ages, we expect to see these habits persist, implying consistent downward pressure on TV screen viewing coupled with higher average time spent watching video on smartphones.



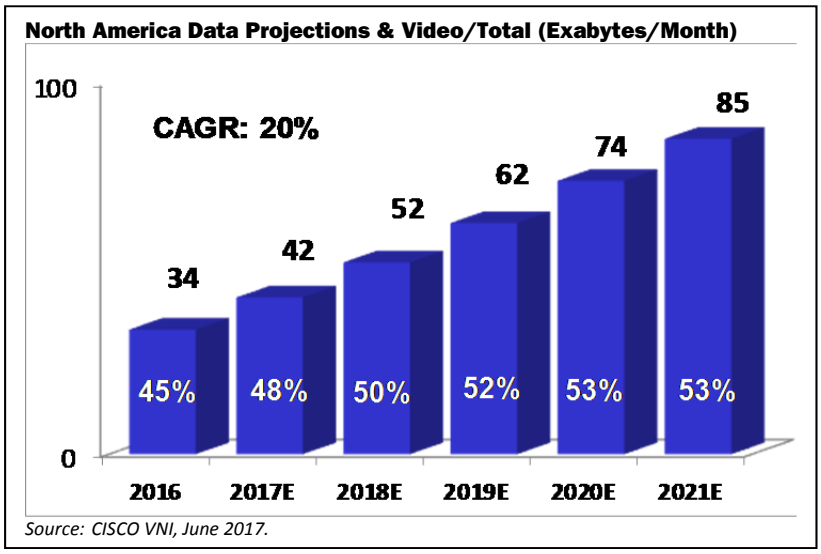
Source: Nielsen, Total Audience Report, 2Q17 .

Internet Traffic Growth Is Primarily Smartphone Traffic Growth

Each of the Internet Aggregators generates a meaningful percent of its total traffic on smartphones globally, which is where more time is being spent.

According to CISCO, between 2016A and 2021E, in North America:

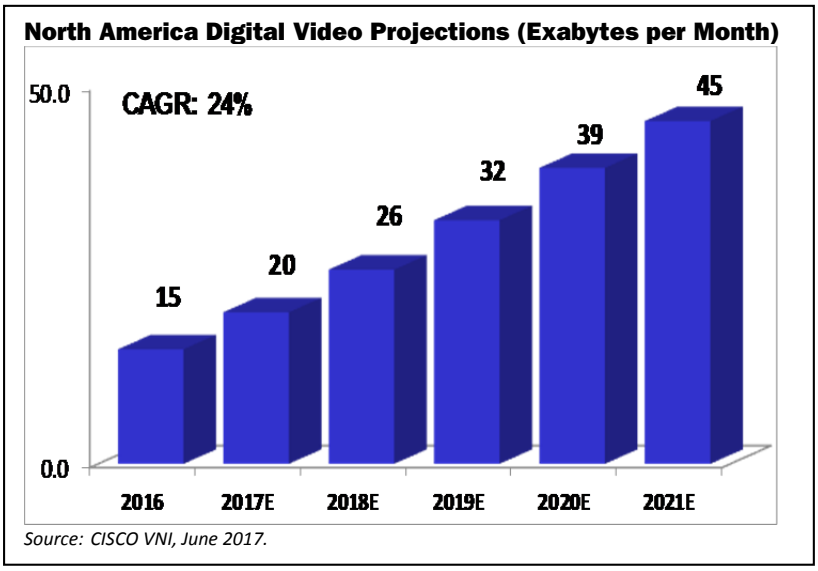
- **IP traffic** will grow at a compound annual growth rate (CAGR) of 20%, a 2.5-fold increase.
- **Smartphone traffic** is the primary growth driver, up 35% annually from 1.4 EB in 2016A to 5.9 EB per month in 2021E. Smartphone traffic will grow from 4.7% of total North American traffic in 2016A to 6.9% in 2021E.
- **Investment Implications.** North American internet data traffic is growing rapidly, driven by consumers' growing demand for all types of content over the internet and on mobile devices.



What's Next? Internet Video Drives Growth

Going forward, we expect video viewing on smartphones to grow rapidly as a use case. Video demand is the most bandwidth intensive and it is growing the fastest. With many of the US wireless competitors now offering "unlimited data" plans, we project that video viewing on mobile phones will accelerate. According to CISCO, between 2016A and 2021E in North America:

- Online video traffic in North America will grow at a CAGR of 24%.
- The growth of video will be faster than overall digital traffic growth, reaching 53% of all consumer internet traffic, up from 45% in 2016.
- Internet video delivered to TVs (i.e., OTT) will grow 4-fold in North America, meaningfully faster than overall video traffic growth of 3x.

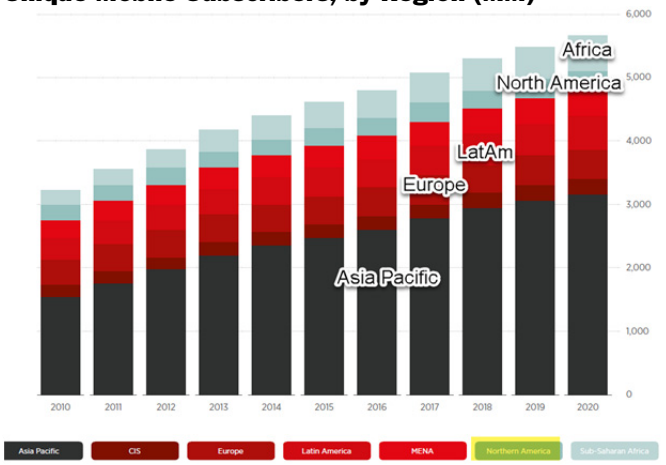


- Live internet video traffic globally will represent 13% of total video traffic by 2021, up 15x, according to CISCO.

Internet Aggregators – Mobile Is Global

One of the key strategic advantages of the Internet Aggregators is that they have all solved both the mobile consumption and mobile economics problems. Another key structural competitive advantage for the Internet Aggregators is that smartphone usage and economics are globally scaled. In fact, only about 6% of the world's smartphones subscribers are in the US, suggesting meaningful revenue upside optionality from parts of the world that many television incumbents will never reach. For example, over 95% of FB's use and over 85% of its revenue come from mobile phones globally. AAPL is a pure play mobile company, and every product line is mobile-first. Netflix app and content are available globally so long as a smartphone is connected to the internet. According to GSMA's 2017 whitepaper:

Unique Mobile Subscribers, by Region (MM)



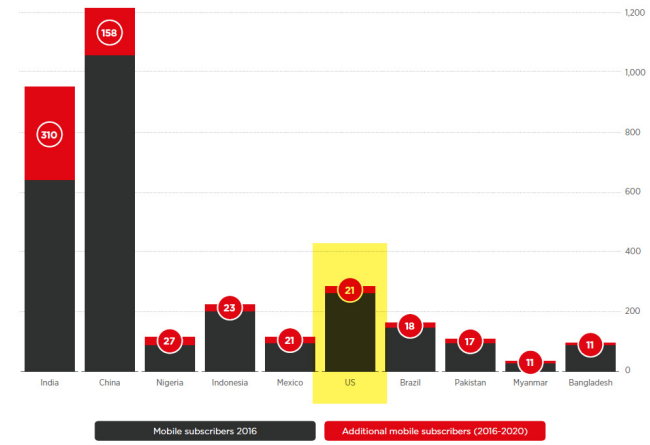
Source: GSMA, The Mobile Economy, 2017.

- At 12/31/16, 4.8B people (65% of the world's population) had a mobile phone subscription. At approximately 270MM US smartphone subscriptions, US mobile subscribers represented about 6% of this total.
- Internet Aggregators can potentially generate revenue from billions of mobile users globally, which gives them an economic advantage over any TV incumbent limited to generating revenue only from regional or national consumers. Many incumbent US TV distributors and several of the US content conglomerates generate revenue primarily in the US.

Mobile Consumer Growth: India & China Are Biggest

The fact that India and China are the fastest-growing smartphone markets suggests that some Internet Aggregators may not stick with a premium video focus for long because very little content is relevant globally. GSMA projects that 10 countries will add 617MM (72% of total) mobile subscribers over the next 4 years:

Top 10 Countries, Ranked by New Mobile Subs (MM)



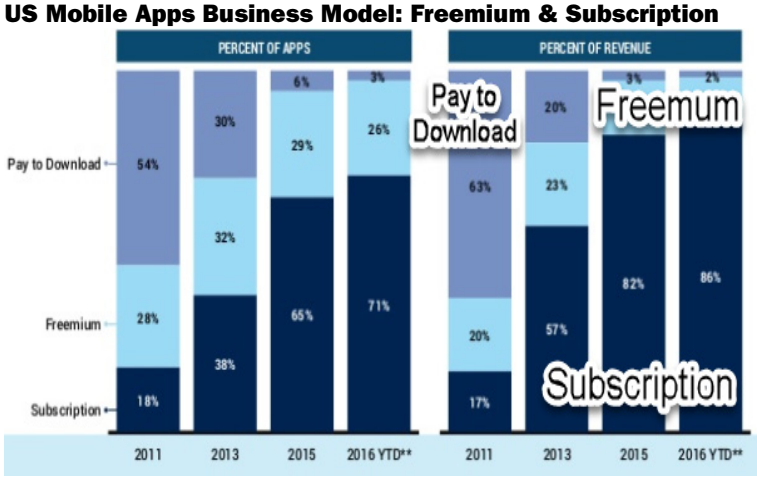
Source: GSMA, The Mobile Economy, 2017.

- **India** will add 310MM mobile subscribers, representing 36% of total mobile phone sub growth between 2016 and 2020.
- **China** will add 158MM mobile subscribers, representing 18% of growth.
- **The US** will add only 21MM new mobile subscribers (i.e., 10% growth) over this period. The US will represent less than 3% of total mobile subs added globally.

Economic Implications of the Shift to Smartphones

The shift toward smartphones is having a meaningful influence on business models. Excluding mobile games, in the 5 years between 2011 and 2016, the percent of revenue attributable to the 3 primary business models on mobile apps in the US had shifted dramatically:

- **The Pay to Download** business model declined from 63% of total revenue in 2011 to 2% of mobile app revenue in 2016. Pay-to-download apps fell from 54% of total apps to 2% over this period.
- **Subscription** revenue on mobile devices grew from 17% in 2011 to 86% of total app revenue in 2016 while the total number of subscription apps rose from 18% of total apps in 2011 to 71% in 2016.



Source: Activate, Internet & Media Spend report, 4Q16.

- **Freemium** apps (where a consumer gets some products or game levels for free and then can pay for add-ons) fell from 20% of revenue on mobile devices to 12%.

Internet Aggregators – Investment Conclusions

The Internet Aggregators have many advantages, including cash, global scale, smartphone dominance, etc.; however, it is unclear whether they adequately appreciate the visual genius that brings hit storytelling to every screen against the backdrop of enormous competitive pressure for viewers' time. Also, money matters. The film business is a business, not a hobby. People who move up in the incumbent TV ecosystems make money for their funders. Although the Internet Aggregators also make money for their shareholders, they do it from a core monopoly product that they invented. They generally don't work well (or at all) with other companies as powerful as them. The risk for them as they come into the TV and film arena is that they end up with the creative folks who cannot get funded in the old world because they don't make money, which implies they don't make hits. Billions of dollars can be wasted on these folks and ideas.

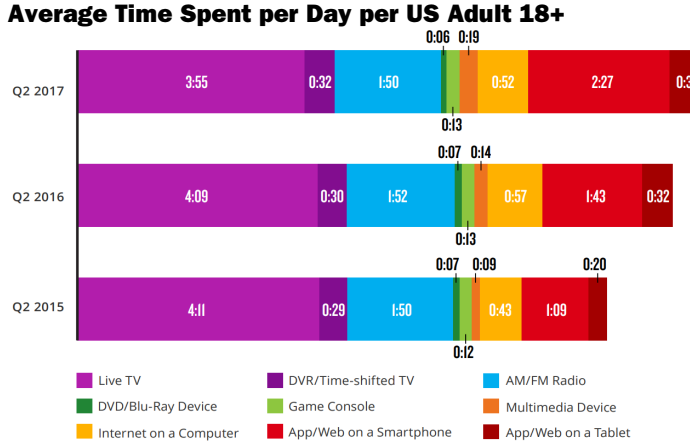
In the end, we believe it is likely that at least one of the Internet Aggregators will be successful at generating consumer adoption of a new form of video content that centers around their unique platform strengths. However, we think it is unlikely any Internet Aggregator will be able to create a culture that directly displaces the best and brightest talent and teams in Hollywood.

Over time, and after investing billions of dollars, we believe they will buy the studios and run them independently with a handful of executives translating Hollywood jargon into Silicon Valley speak because, in the end, content and distribution are complementary networks and are worth more together than apart. The internet represents global distribution. New film and TV content plus libraries should have enormous and increasing value over time.

Champs – TV Time Spent Remains Dominant

Although smartphone usage is growing rapidly, linear TV viewing time has been about flat at around 4½ hours per day per US adult over the last two years. Added to smartphone growth, the result has been growth of total time spent with media in the US. In effect, smartphones are creating "new windows of time" that can be programmed and monetized. According to NLSN:

- **Total Media Time Spent** in the US in 2Q15 was 8 hours and 56 minutes per day per adult. By 2Q17, this had increased by about 112 minutes to 10 hours and 48 minutes. Growing smartphone usage (up 78 minutes between 2Q15 and 2Q17) represented most (70%) of this growth. Smartphone usage rose more than 2-fold from 1 hour and 9 minutes to 2 hours and 27 minutes.

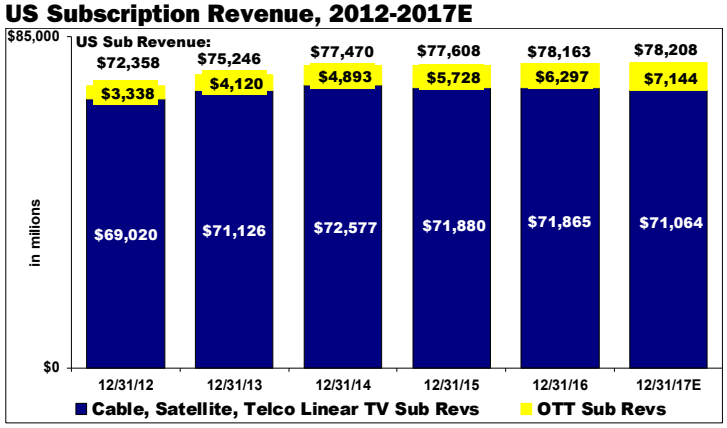


Source: Nielsen, Total Audience Report, 2Q17.

- **Linear TV Viewing**. Between 2Q15 and 2Q17, linear TV viewing (including DVR) fell 5% from 4 hours and 40 minutes to 4 hours and 27 minutes. In 2Q17, linear TV viewing still represented about 45% of total media time spent each day by adults over 18 years old in the US, according to Nielsen.
- **Investment Implications**. Audiences are fragmenting, so broad reach becomes more valuable to advertisers, as evidenced by the skyrocketing price of Super Bowl ads. Also, smartphones and tablets are driving higher media consumption, and more time spent.

Champs – Mega Bundle vs. OTT Revenue

- **More Subscription Revenue**. With more choices and more price points, US consumers are spending more than ever before on TV subscription payments. We estimate that US subscription revenue has grown from a total of $72.4B in 2012 to $78.2B in 2017, representing a CAGR of about 2%.

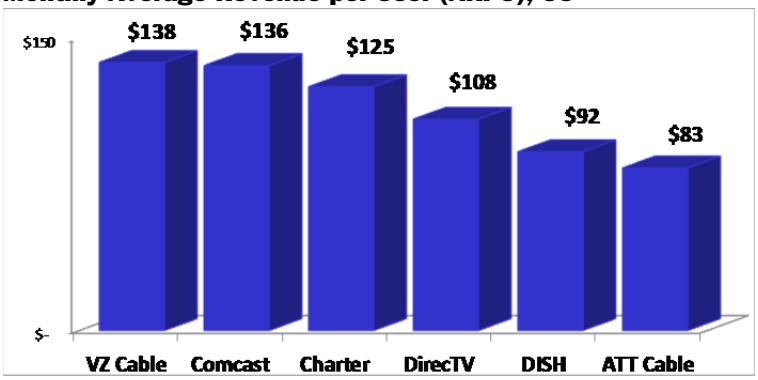


Source: Companies, Nielsen, Needham & Company, LLC research.

- **Investment Implications**. US consumers are paying more subscription dollars for TV content than ever before. Most US SVOD aggregators pay out 70-90% of their revenue to the incumbent US content conglomerates for their deep libraries or current season series. By implication, the extra money being paid by consumers for both the mega-bundle and OTT content is generally going back to the incumbent content owners.

A Pricing Problem Caused by Netflix

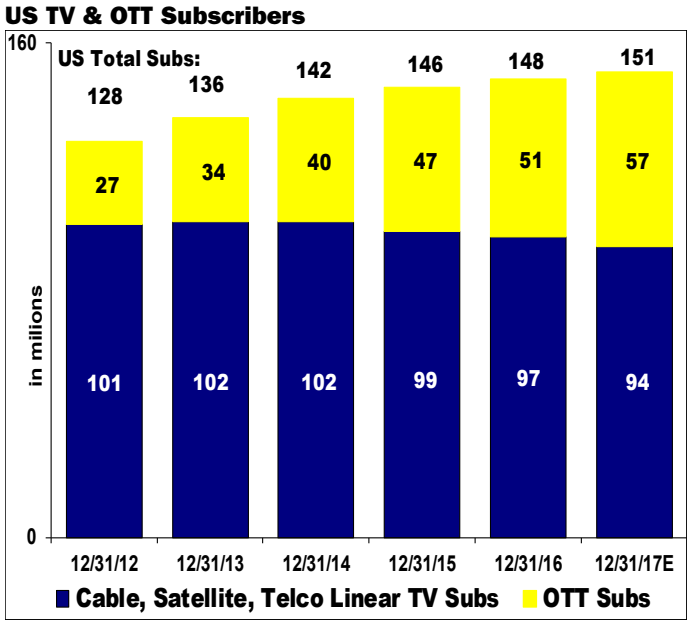
- **Mega-Bundle TV ARPUs** range from a high of $138 per month for VZ to $83 for ATT Cable vs. Netflix at about $8-12 per month in the US. This lowers consumers' price expectations for similar quality TV and movie content, just older.
- **Free-Riders.** Lower monthly prices for internet delivered services like Netflix are enabled by the fact that they don't pay for any infrastructure backbone upgrades. For example, Netflix streaming often represents over 30% of total usage of the internet pipes at peak times, but Netflix pays almost nothing for this, so it can price its service at $8-12 per month. In economics, this is called a "free rider" problem. In part, the higher ARPUs of the Cable and Telcos must include the extra capital spending required to add more internet fiber to deliver higher OTT speeds to the home to meet higher bandwidth demands for OTT services.
- **Investment Implications.** The disparity between which companies pay for internet backbone vs. which companies use the internet as distribution is distorted. Ultimately, the consumer pays for everything and today the consumer is paying more for the new (inefficiently delivered) OTT services.



Source: Companies & Activate, Internet & Media Spend report, 4Q16.

Champs – Record Subscribers Paying for TV & Film Content

Mega-bundle (250+ TV channels) subscribers are lower by 8MM subs since 12/31/14, but US consumers are paying for a record number of TV subscriptions. Mega-bundle subs are about 94MM plus OTT subs at 57MM, or 151MM total subs, which is a record high. Since TV viewing and OTT viewing are each several hours each day, this implies that US consumers are watching more TV content than ever before. Since there were 120MM (Nielsen) US households in August 2017, and about 20MM (eMarketer) are cord-nevers, this implies that of the 100MM homes that have a pay TV subscription, 94% (94MM) pay for a mega-bundle TV subscription and 6% (6MM) pay for OTT only and 51MM (57-6MM) homes pay for both.

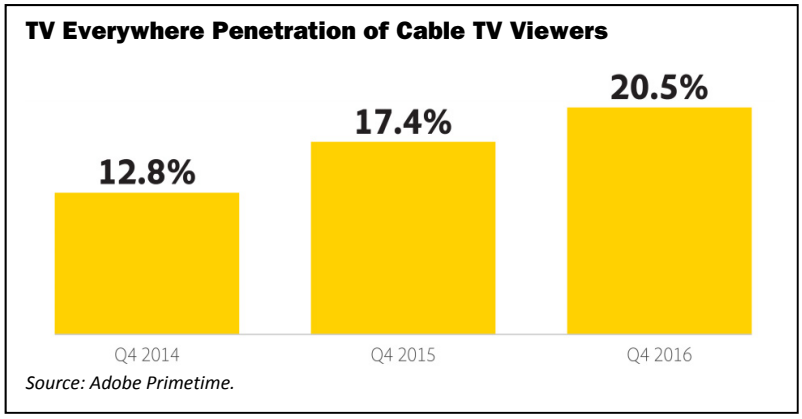


Source: Companies, Nielsen, Needham & Company, LLC research.

Why Haven't Mega-Bundle TV Subs Fallen Faster?

TV Everywhere Adoption. The TV Everywhere (TVE) product was introduced by the cable industry to allow any linear pay-TV subscriber to watch any TV channel on any device, in or out of home, after entering an authentication code. TVE viewing is over the internet and not through a set-top box so it can be accessed on every screen. According to Adobe, between 4Q14 and 4Q16, in the US:

- **TVE usage** nearly doubled to 1 out of 5 cable TV subscribers using TVE.
- **Churn** of the linear TV bundle falls when consumers access TVE because it improves the perceived price/value equation, by allowing consumers to access mega-bundle linear TV channels at any time on any screen. By implication, TVE raises the lifetime value per customer.

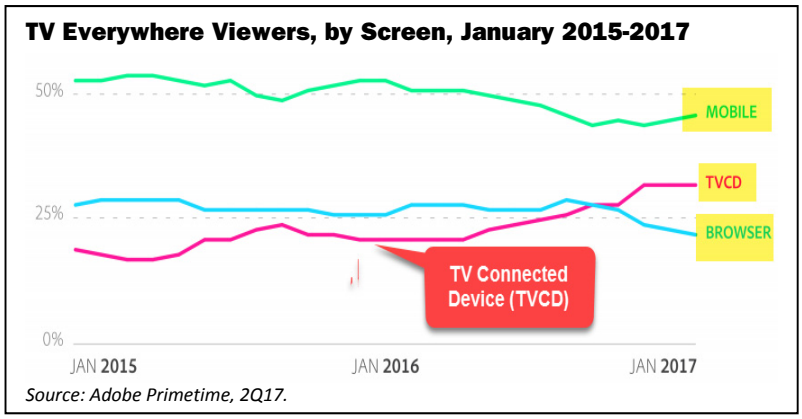


- **Investment Implications.** The big bundle is fighting back by making its 250 channels available on digital devices. This narrows the perceived convenience and value gaps between new OTT competitors and the incumbent linear TV mega-bundle.

TVE Viewing on Connected TVs

There appears to be a pivot back from mobile smartphones and tablets toward watching TV content on connected TVs in the home. TVE allows younger viewers to access the mega-bundle of linear channels on any screen, and increasingly they are doing this on connected TV sets rather than their smartphone. According to Adobe, between January 2015 and 2017, in the US:

- **Viewing** of TVE has pivoted toward connected TVs and away from mobile (tablet and smartphone) devices, laptops and desktop computers (i.e., browsers) screens. We believe this is being driven by broader adoption of TVE by older demos and by the "best available screen" preference of consumers over 30 years old.



- In January 2017, viewing on mobile screens accounted for 45% (down from 55% 2 years ago) of TVE viewing vs. connected TV devices at 30% (up from 20% 2 years ago) and computers (i.e., browsers) at 20% (down from 26%).
- **Investment Implications.** Consumers are watching more linear TV on digital devices rather than over the set-top box. However, they are increasingly choosing to watch TV content on a larger digital screen (like OTT TV) and moving away from small screens such as laptops, tablets and smartphones. This is a positive trend for Roku.

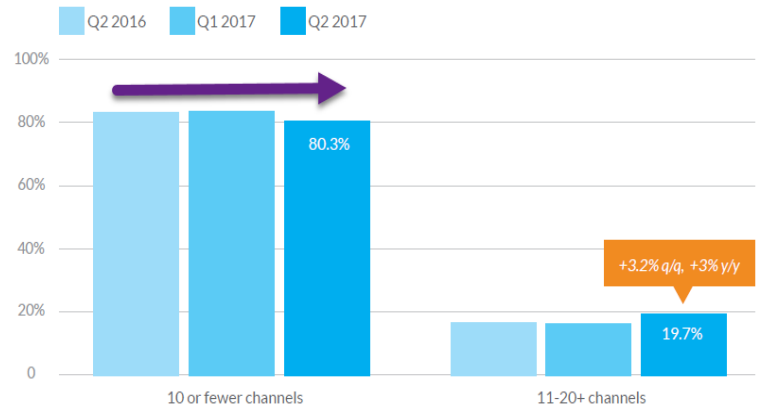
The Price/Value Problem of the Mega-Bundle

Although the mega-bundle has more than 250 linear TV channels, 80% of consumers say they watch 10 or fewer channels each month. Only 20% of people say they watch more than 11 channels. Mental math implies to them that they should pay just 10/250 the cost because they only watch 10/250 of the available channels. A hidden value they don't properly value is the friction-free option to change their top 10 channels. For example, in 2011, A&E was not a top 20 channel. In 2012, A&E rocketed to become a top-5 TV channel thanks to record-breaking ratings of *Duck Dynasty.* Consumers still only watched 10 channels, but A&E became one of those, based on a single show.

TiVo's 2Q17 Video Trends Report found that in the US:

- 80% of consumers say they typically watch 10 TV channels each month. This is consistent with Nielsen's findings that the average household watches an average of 14-18 different TV channels each month.
- About 20% of pay-TV subscribers said they watched 11-20 channels per month, higher y/y.

10 TV Channels Watched per Person

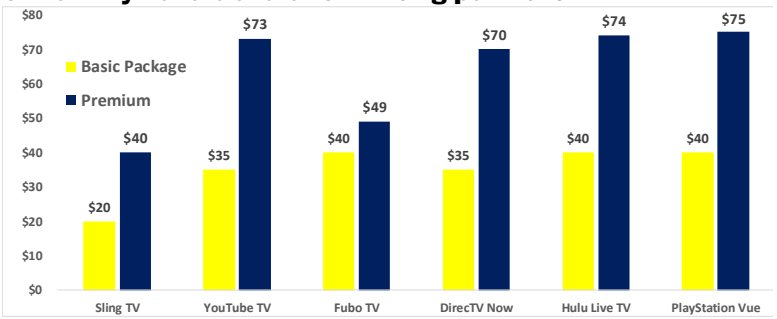


Q: Of pay-TV channels offered, how many channels to you generally watch?
Source: TiVo, 2Q17, Video Trends Report.

Champs – Skinny Bundles Reinforce the Value of the Mega-Bundle

As consumers increasingly perceived the mega-bundle as too big, several companies began to introduce "skinny bundles" (also called "virtual MVPDs, or vMVPDs"). These are bundles of 20-50 linear channels offered to consumers at price points of $20-75. Skinny bundles generally include a sub-set of linear TV channels from the mega-bundle.

OTT Skinny Bundle and SVOD Pricing per Month



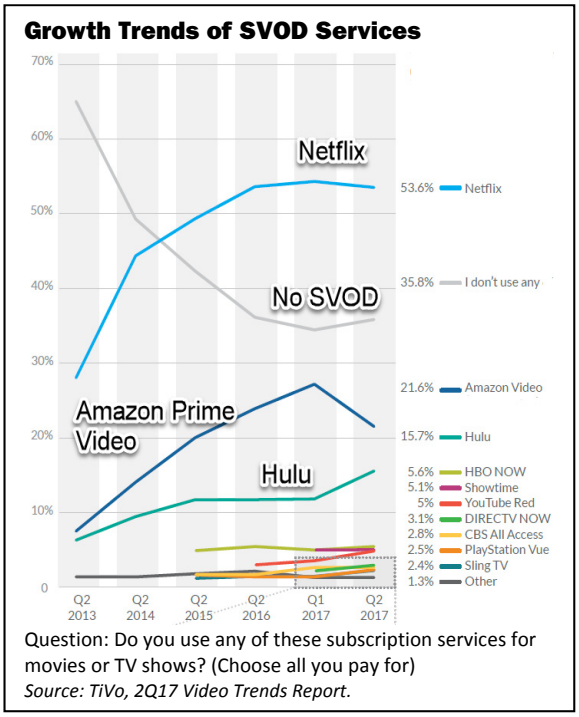
Source: Companies, Needham & Company, LLC estimates.

For example, Sling TV offers 45 TV channels and YouTube TV offers 57 channels, and Fubo-TV offers 94 sports-related TV channels. These bundles give consumers ways to cut their TV costs, although consumers must pay for the internet in addition to these monthly fees because skinny bundles are delivered via the internet.

Adoption of skinny bundles has been slow. Sling TV was the first mover (launched in 1Q15), and in June 2017, it had 2MM subs. FuboTV had 100,000 subs in September 2017. DirecTV reached 1MM subs in 4Q17. PlayStation Vue had 500,000 subs in 4Q17. It is still early days for the YouTube TV and Hulu Live TV skinny bundles. Skinny bundles underscore the value of the mega-bundle.

OTT Adoption Is Flattening, Suggesting Mega-Bundle Stability

In addition to skinny bundles, there are two other types of services delivered over the internet (OTT): a) SVOD services like Netflix, Hulu and Amazon Prime, which are *NOT* linear channels but do aggregate traditional TV series and films, usually organized by genre, with no commercial interruptions; and b) individual OTT channels like CBS All Access and HBO Now. According to TiVo:



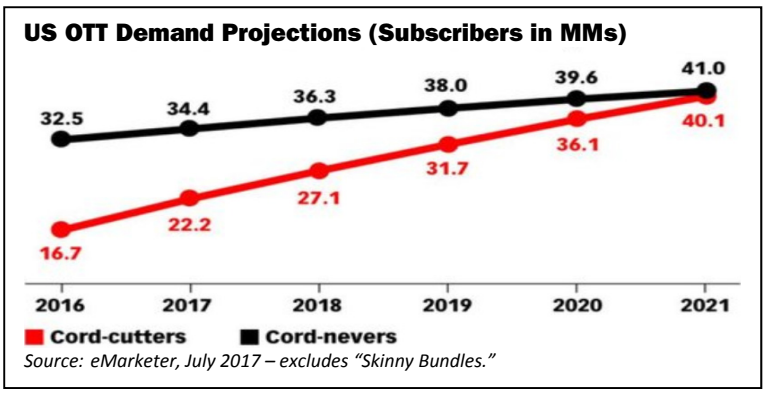
Question: Do you use any of these subscription services for movies or TV shows? (Choose all you pay for)
Source: TiVo, 2Q17 Video Trends Report.

- **Netflix.** An early driver of cord-cutting was Netflix, which offers high quality long-form library content at a fraction of the price per hour viewed vs. the pay-tv mega-bundle. We estimate that content companies are paid about 1/10 per hour of viewing from Netflix compared to the dual revenue stream pay-TV ecosystem. In addition, Netflix cannibalized TV viewing time and taught consumers to expect lower ad loads.
- Since 2Q16, consumer demand for Netflix, Hulu and Amazon Prime has flattened. In 1Q17 and 2Q17, Hulu appeared to be taking share from Amazon Video.
- In contrast, demand for skinny bundles appears to be growing, although still very small.
- CBS All Access and HBO Now sub growth is up (although small) and probably the most limited because it is not generally bundled, which maximizes consumer confusion.

In its 2Q17 survey, TiVo found that consumers said they were adopting OTT because it was more convenient (34%), cheaper (31%), no commercials (31%), and allowed for binge watching (30%). Notice top answers did *not* include original programing, which is a core Netflix focus.

Mega-Bundle Plus OTT Suggests More Viewing of TV Series and Films

Excluding skinny bundles, between 2017 and 2021, eMarketer projects:



Source: eMarketer, July 2017 – excludes "Skinny Bundles."

- "Cord-nevers" are projected to reach 41MM, up 7MM.
- "Cord cutters" are projected to reach 40MM, up 18MM.
- eMarketer's projections imply that about 80MM households will be without a TV bundle by 2021.
- This seems unlikely to us since today we estimate that 51MM households pay for both the mega-bundle plus at least one OTT service compared to only 6MM subscribers paying for an OTT service with no mega-bundle.
- Roku is a key beneficiary of the shift to OTT.

Champs – "Clusters" Theory Suggests Content Creation Will Remain in LA

We believe TV and film-making will remain in Hollywood and the Internet Aggregators will remain predominantly in the Silicon Valley owing to Clusters theory—the notion that geographic concentration creates competitive advantage. The underlying concept, which economists also refer to as "agglomeration economies," ties back to the work of Alfred Marshall in 1890. *Clusters theory jettisons the notion of competitive advantage as a concept relating to a single company and instead redefines competitive advantage based upon the geographic location of an ecosystem of companies.*

Academic literature defines a business cluster (Cluster) as: "a geographic concentration of interconnected businesses, suppliers, and associated institutions in a particular field. A Cluster is a geographical location where resources and competences reach a big enough threshold to generate sustainable competitive advantage for companies inside the Cluster." The Silicon Valley and Hollywood are Clusters, which gives them regional sources of competitive advantage that are hard to displace.

In 1990, Michael Porter found that geographic clusters can impact value in three ways: a) by increasing productivity of companies inside the Cluster; b) innovation is faster in the Cluster; and c) by stimulating new kinds of business in the Cluster. Porter's key insight is that many new economic activities in the US are aided by social interactions and that geographic proximity with strong inter-personal networks generate faster innovation and value growth in Clusters.

An academic paper by Brian Arthur of Stanford University in 1989 found that when there was no upper limit to increasing returns based on geography, there tends to be a monopoly outcome. That is, an entire industry will Cluster in just one geography, such as the Silicon Valley and Hollywood.

In 1994, a book entitled *Regional Advantage: Culture and Competition* compared the history of Route 128 to the Silicon Valley. Both were equal and in ascendency in the 1970s, followed by crises and downturns in the 1980s. In the 1990s, Route 128 was eclipsed by the Silicon Valley Cluster. Today, nearly half of the largest technology companies created since 1965 are in the Silicon Valley Cluster. The author ties the success of the Silicon Valley Cluster to a culture of fast change, rapid decisions, rapid movement, and lots of employee movement between firms, which accelerated information flow. The Cluster's culture was one of collective learning and flexibility through rapid iteration, which encouraged new start-ups and rapid innovation. The Clusters dense social network and open labor markets moved employees rapidly within the Cluster to companies most likely to succeed. The Cluster had self-reinforcing benefits, including technically skilled labor, venture capital, specialized suppliers, infrastructure, and adjacent knowledge resources thanks to the proximity of Stanford University, UC Berkeley, IBM's San Jose Laboratory, and Xerox's Palo Alto Research Center. Informal knowledge transfer, thanks to thousands of young employees socializing in bars on weekends and changing jobs frequently, accelerated problem solving and innovation.

"Hollywood" is an ancient Cluster. After the big movie studio system was broken up in the 1930s, it fractured into a large number of small specialist firms. Clustering in Hollywood allowed these small companies to benefit from scale without the studios' wage or rules hierarchy. LA is still the dominant creative/storytelling Cluster, with film, television, music and publishing coming from LA as the single largest export location from the US and the most globally competitive. With over 35 of every 1,000 workers employed in arts, design, entertainment and media occupations, Los Angeles has the highest concentration of entertainment workers in the country.

A 2015 academic paper published by Gilles Duranton of Harvard Business School focused on Hollywood's advantages that accrue from being geographically clustered, including the concentration of movie production assets that drive productivity gains such as "better matching of actors and actresses to specific parts, the emergence of specialized law firms that support the entertainment industry, and the development of schools to train employees in primary and supporting roles." Most interesting to us is that internet content has centered in a part of LA called "Silicon Beach," adding strength to the creative Cluster. Hollywood has the competitive advantage of attracting a broad range of creative people whose skills and artistry are essential to creating successful films and TV series. Los Angeles is the creator of American (and global) popular culture. The Silicon Valley changes the world through technology.

Champs – Academic Research Suggests Less Mega-Bundle Defections

About half of the traditional US TV ecosystem's annual revenue comes from consumers paying subscription fees to their cable/satellite/telco operator for mega-bundle access. Although consumers are demanding a broader array of choices, we expect a la carte and skinny bundle channel offerings to account for less than 25% of US subscription revenue and less than 15% of total revenue (including advertising) at maturity. Why? Because as skinny bundles and OTT channel choices grow, choosing among hundreds of channel choices is hard work for consumers. It creates a "Tyranny of Choice."

Academic research indicates that too many choices lowers consumer value:

- In 2004, Barry Schwartz wrote a book entitled *The Paradox of Choice: Why More Is Less,* in which he concluded that having too many options to choose from often leaves consumers bewildered and less satisfied.
    a. One of his key insights is that too many choices often produces paralysis. Consumers simply don't decide at all. They chose nothing, because they fear making the wrong choice.
    b. If they actually reach a decision, too many choices often make them second-guess whether they made the right decision, thereby lowering satisfaction of any purchase decision.
- Professor Sheena Iyengar of Columbia Business School has spent her academic career studying the value created by choice. In her 2010 book entitled *The Art of Choosing,* she includes a now famous experiment where she alternated offering tastings of a large assortment of jams (24 of the 28 total flavors made by Wilkin & Sons), followed by a small selection of only 6 jams, and found that when consumers went to the jam aisle to purchase jam after the tasting, "People who had sampled the large assortment were puzzled. They kept examining different jars, and if they were with other people, they discussed the relative merits of the flavors. This went on for up to ten minutes, at which point many of them left empty-handed. By contrast, those who had sampled up to six jams seemed to know exactly which one was right for them. They strode down the aisle, grabbed a jar in a quick minute and continued with the rest of their shopping." In all, 30% of people who had sampled the small assortment decided to buy jam, but only 3% (1/10th) bought a jar after sampling the large assortment. In this case study, too many choices lowered revenue by 90%.

Many of the best marketers in America offer consumers three choices because it allows consumers to default to the middle choice where they do not second guess themselves. In TV, the middle choice has been called the "expanded basic" TV bundle, which more than 65% of US pay-TV households subscribe to. A 2Q17 PwC's survey found that streaming service users are beginning to feel somewhat overwhelmed by the sheer number of platforms offering content. Respondents said they used an average of four video content services, including pay TV and digital options, but only 25% said they could comfortably manage all of those services.

Investment Conclusions: The notion that consumers will perceive they are better off (i.e., higher value) when their choices go from 3-5 TV bundle options to 100-5,000 OTT TV apps is flawed, according to the academic literature. Too many choices can overwhelm consumers and lead to inertia, which implies staying with the mega-bundle. In addition, skinny bundles may be an on-ramp to bigger bundles over time, as households add members (i.e., kids) with a broader range of viewing demands. The mega-bundle may prove to be more robust than the consensus view.

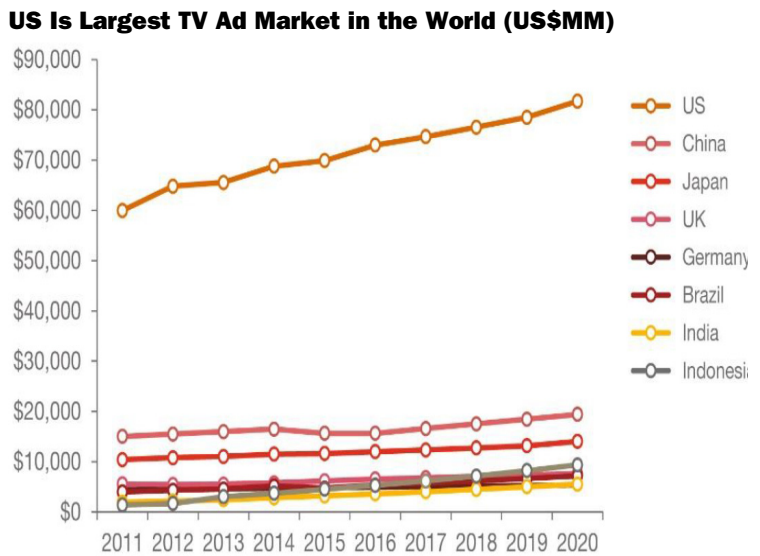
Champs – Dual Revenue Stream Business Model

One of the most powerful weapons in the arsenal of the incumbent TV ecosystem is its dual revenue stream business model. Wall Street values multiple revenue stream businesses more highly, because diversification lowers risk. Also, subscription revenue streams represent downside protection during recessions, while high-margin advertising revenue represents upside revenue and profitability during economic expansions. Finally, The US TV ecosystem generates about $170B each year of revenue (40% from advertising plus 60% from subscription) at 20% profit margins, implying that if any competitor ecosystem only generates revenue from one of these revenue streams, it can't compete long term against the dual revenue stream business model of the incumbent US TV ecosystem.

Champs – US TV Advertising Is Enormous and Growing

PwC projects that:

- US TV advertising will be approximately $70B in 2017.
- US TV advertising has grown consistently since 2011 and it is expected to report consistent (albeit slow) growth through 2020. This is especially impressive given growth of digital advertising from zero to over $80B (includes search revenue) in 2017.
- Annual US TV advertising revenue dwarfs every other country on earth, including China and India.
- Annual TV advertising growth in other countries is much slower than in the US, even though the US is many times larger.



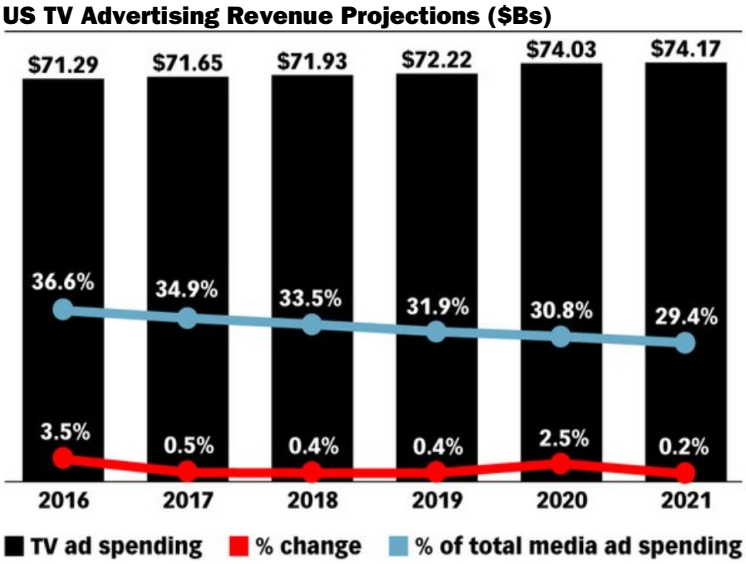
Source: PwC, Global Entertainment & Media Outlook, 2016-2020.

- **Investment Implications.** Given that that the largest digital video platforms are YouTube ($3.5B of 2017 US video ad revenue), FB video ($2-3B of US video ad revenue) and ROKU ($200MM of US video ad revenue), it is hard for video ad revenue to follow audiences to digital platforms given the enormous size ($70B) of the US TV ecosystem.

Champs – US TV Advertising Projections

eMarketer also projects consistent growth for US TV advertising through 2021:

- US TV advertising will reach $71.6B in 2017.
- Online US video advertising revenue was $10B (i.e., 15%) in 2017, of which YouTube was $7B (it keeps 50%).
- Owing to new unlimited data plans by major telecom providers in the US, we project that video viewing on smartphones will grow rapidly, and this should lead to faster growth of video ad spending on mobile devices.

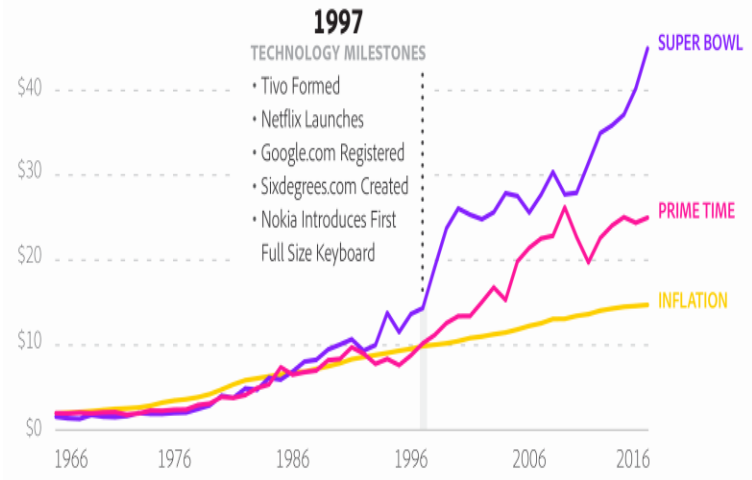


Source: eMarketer, September 2017- excludes digital.

Champs – Broad Reach Becomes More Valuable

As audiences fragment across devices, broad reach becomes more valuable. That is, with an explosion of niche audiences, they become commoditized because there are many ways to reach mothers in Kansas or single men in Texas. Ubiquitous reach becomes more valuable, as proven by its pricing power. According to Adobe, between 1997 and 2016:

- **US Inflation** grew from an equivalent of about $10 cost-per-thousand viewers (CPM) to $15.
- **Primetime** CPMs grew from $10 to $25, nearly twice the rate of inflation, thanks to their unduplicated reach with no fraud.
- **Super Bowl** CPMs (as close to ubiquitous reach as any media) grew from $15 to $45, twice primetime pricing, driven by broad global unduplicated consumer reach with full sight, sound and motion ads, and zero fraud thanks to independent third-party measurement.

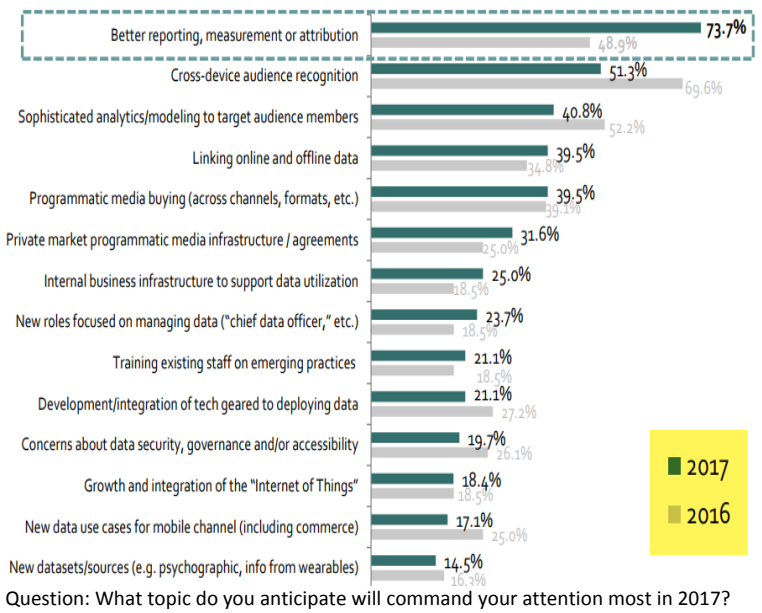


Source: Adobe Primetime 2Q17, Variety, SiteAdWiki, etc.

- **Investment Implications**. TV channels in the mega-bundle and skinny bundles are strong aggregators of unduplicated audiences with no fraud and few substitutes (other than the other channels in the mega-bundle). Because Nielsen measures all mega-bundle viewing, all ad units are directly comparable. Hit content becomes more valuable in a world of fragmenting audiences.

Champs – Consistent Measurement Is a Key Competitive Advantage

Despite persistent complaints about Nielsen, a key reason the US TV ecosystem has the largest ad revenue in the world is because it has consistent third-party measurement across the top 100 channels, 24 hours each day, 7 days each week. This allows brands, marketers, ad agencies, etc. to compare pricing and returns on ad spending across TV channels and to iterate to improve performance. It also lowers accusations of fraud, which have plagued FB, YouTube, etc. According to IAB:



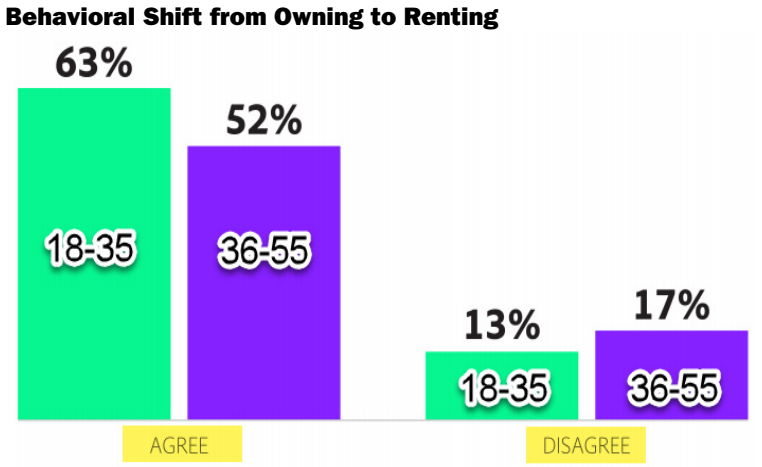
Question: What topic do you anticipate will command your attention most in 2017?
Source: IAB, January 2017.

- 74% (up from 49%) of senior ad executives stated that their key focus during 2017 would be on better reporting, measurement and attribution. This is good for Nielsen and comScore.
- Focus on cross-device audiences plummeted from 70% in 2016 to 51% in 2017. Also, modeling to target audiences fell from 52% to 41%.

Millennials Behavior Shifts – Rent vs. Buy

We believe that the TV ecosystem is aided by the trend in millennials away from ownership and toward 24x7 streaming access. With the aid of TV Everywhere, which allows Millennials to access each channel in the mega-bundle on any device in and out of home, this dovetails nicely with consumer behavior trends. According to the 2017 ADI Millennial Survey:

- About 2/3 (63%) of Millennials say they do not need to own something if they can pay for access whenever they want it. More surprisingly, about half of "old" people agree.
- This new attitude toward non-ownership is supported by the rapid adoption and growth of Uber and Lyft (lower car sales), Spotify and Apple Music (lower music sales), and the popularity of digital movie and book rentals (lower DVD and book sales).



Question: If I can access what I need when I need it, I don't need to own it.
Source: ADI Millennial Survey 2017.

Consolidation as a Weapon

A reasonable strategic move for the large content conglomerates is to merge, which lowers costs, adds scale to meet this growing competitive threat, and creates larger libraries to offer direct-to-consumer streaming channels. However, the US government is looking backwards and ignoring the monopoly gatekeeper characteristics of the new internet competitors. It is unclear which media mergers, if any, would be approved, which adds risk to trying.

Merging allows content creators to cut costs to maintain their EPS growth in an environment where they must be spending tens of millions of dollars to launch direct-to-consumer (DTC) channels. For example, DIS has announced it can cut costs by $2B after buying certain FOXA assets. We believe a portion of this would be reinvested to launch its two announced DTC channels. With DISCA buying SNI and DIS buying FOXA and ATT trying to buy TWX, we expect the next consolidation could be CBS with Viacom. Since both entities are controlled by Sumner Redstone, this would be a logical solution to add scale. We hope the regulators eventually agree with us that the competitive field is much larger than only the incumbent TV ecosystem competitors, and we believe the incumbents must get larger if they hope to compete with the enormous Internet Aggregator juggernauts.

Creative Culture as Weapon

We believe that what makes a great creative culture is very difficult to replicate and it has little to do with money. Anyone in Hollywood will take your money, and they each believe they have the next *Forest Gump* or *Pretty Woman* or *Wedding Crashers*. However, 1 out of every 10 TV series or films is a hit and most of the others are written off. Netflix's track record of making hits vs. B and C titles is worse, despite its enormous data trove advantages. Cash isn't what makes the difference between making hits and non-hits, nor is data. It's much harder chemistry than that. And this weapon, although unquantifiable, may be the most powerful moat of all.

Lawyers as Weapons

Disruption of the US TV ecosystem has proven difficult in part because nearly every business interaction is reviewed by lawyers and documented in writing under long-term contracts governed by strict non-disclosure clauses. Many contracts have most favored nation clauses (MFNs), implying that if a content creator gave a new entrant like Hulu or Apple a better price or preferential terms, that deal immediately accrues to Comcast or ATT—a huge cost. As a result, each new technology gets priced at a 10-15% premium to the prior one, minimizing the chances of triggering any MFNs.

Stocks – Making Money in Media in 2018

Assuming no consolidation, we think there are several ways investors can make money in the media names we cover in 2018. In the large cap space, we recommend: a) **CBS,** based on its hidden OTT value and unprecedented US election advertising upside in 2018; b) **Facebook,** because it is an ad-driven business with powerful ad targeting upside built on top of a world-class consumer aggregation platform with 2.1B monthly users at 9/30/17; and c) **Activision Blizzard and Electronic Arts**, based on rising TAM, new revenue streams, higher margins and eSports upside. In the mid-cap space, we recommend: a) **Roku,** which is a call on the US mega-trend toward streaming and is the dominant aggregation platform for 5,000 OTT TV channel apps; and b) **WWE,** because it has successfully transitioned its core growth driver from the linear TV ecosystem to the OTT space.

2018 Stock Picks: CBS (CBS, Buy)

- **CBS Radio** sale to Entercom closed in 4Q17 with many more CBS shares retired than expected. This should drive faster EPS growth in 2018 than expected. It also eliminates a slow growing non-core asset.
- **FCC** liberalizing TV ownership rules should revalue CBS's local stations upwards.
- **Political Advertising** revenue in 2018 should add $220-250MM to earnings plus lower unsold ad inventory which raises CPMs for the entire year, especially 2H18.
- **OTT Hidden Value.** We project that CBS All Access plus Showtime OTT will reach 8MM subscribers by 2020, implying about $850MM of annual new subscription revenue. CBS News and CBS Sports OTT services (which are ad-driven, rather than subscription) would add to this revenue upside for valuation purposes. If together all CBS OTT services generate revenue of $1B in 2020 and we assume current Netflix revenue multiple of 7x forward year revenue, this implies hidden value from CBS's OTT assets of $7B, or nearly 30% of CBS's current market capitalization.
- **CBS All Access**. We believe that the new "Twilight Zone" episodes and a second season of "Star Trek: Discovery" will drive US and international subs higher. We estimate that adding NFL to CBS All Access drove 75% subscriber growth y/y for CBS All Access. Separately, CBS All Access has not raised its price from $6/month since launch but has added 6,500 episodes from the CBS library, plus the NFL programming, plus 98% of the 210 CBS affiliates programming in local markets. This implies upside pricing potential to us. We believe that ad units sold on CBS All Access generate a 10% premium above the CBS Broadcast channel CPMs thanks to its audience concentration of younger viewers.
- **Viewing Growth**. We estimate that 70% of viewing on CBS All Access is of the live stream of CBS plus replay of recent episodes in the current season. We believe that CBS All Access can achieve its goal of 4MM subs by 2020 because by then CBS should be producing about 5 new series (with 10-13 episodes each) for All Access. This represents about 10% of total series on CBS Broadcast station and about 5% of programming hours. This suggests upside to today's price point of $6/month to consumers. We expect that CBS will release 1 episode per week on its OTT services, and start a new original series 1-3 weeks before another series ends. This maximizes the likelihood that consumers pay the All Access bill every month, and lowers churn.
- **Nesting**. We believe that CBS has a "nesting strategy" for its OTT assets. CBS All Access has entertainment, news and sports content. CBSN does news, which is a sub-segment of CBS All Access. The announced (but not yet launched) CBS Sports is a silo within news. In both cases, CBS has programming already but is not monetizing it. OTT gives CBS the ability to generate revenue from a historical cost center that was left on the cutting room floor.
- **Risks** to our price target include the economy, ratings weaknesses, and rising costs of production, including sports rights fees.

2018 Stock Picks: Facebook (FB, Buy)

We recommend Facebook owing to its: 1) strategic position; 2) financial momentum; 3) mobile ad dominance; 4) valuation; 5) new revenue streams; 6) revenue diversification; and 7) deep moats.

- **Strategic Position.** With 1.4B daily active users and 2.1B monthly users (at 9/30/17) using FB's family of apps about 50 minutes a day, FB is the dominant mobile aggregation platform for finding and connecting people globally. As advertisers follow younger audiences to their mobile devices, demand for FB's mobile ad inventory is growing. Since social and community are driving discovery, FB is becoming more critical to other apps in the mobile ecosystem.
- **Financial Momentum.** FB's revenue growth has been relentless, with revenue up 54% y/y in 2016, 45% y/y in 2017E, and 40% in 2018E, even though FB had $40B of revenue in 2017E (98% is advertising). Historically, dominant online aggregation platforms (i.e., internet gatekeepers) command premium economics. For example, we believe FB and Google will together amass over 80% of all online advertising revenue growth in 2018, as they have for the past 2 years.
- **Mobile Ad Dominance.** FB is the best way for advertisers to reach consumers on their smartphones, as 97% of FB's usage and 88% of revenue in 3Q17 came from mobile devices. FB's enormous scale gives it best-in-class targeting capabilities. FB is also attractive to advertisers owing to its always-registered environment with real names, its closed platform (i.e., less fraud), 4 apps (Facebook.com, Instagram, Facebook Messenger and WhatsApp) each with disparate use cases, and ubiquitous global reach.
- **Valuation.** FB is currently valued at 8.7x EV/2018E revenue. Based on FB's 2017 EPS growth rate of 70% y/y, its PEG is 0.40, which we view as inexpensive. For 2018, FB has guided to record high cost growth so our (and consensus) estimates assume only 15% EPS growth. We believe this will turn out to be low because FB generally beats consensus EPS estimates and lowers its annual capex guidance as the year progresses, as its primary costs are people and it "costs" 10-20 hours of interviewing time to hire one person, which caps spending growth.
- **New Revenue Stream** upside optionality includes: Watch (video); Marketplace (consumers selling items to consumers, like craigslist); Workplace (30,000 enterprise customers today paying $2/month/seat for chat and collaboration services); and Oculus, which gives FB a front row seat to VR/AR & video games.
- **Revenue Diversification**. Historically, most revenue came from the Facebook.com site, which had 2.1B monthly active users (MAUs) at 9/30/17. Beginning in 2017, Instagram began to add meaningful revenue to FB, as it has now reached 800MM (MAUs). WhatsApp (1.4B MAUs) and Facebook Messenger (>1B MAUs) are early in their monetization but, together, they could double the revenue vs. the Facebook.com site alone given their enormous reach and time spent.
- **Moats.** FB specializes in communication platforms, which benefit from network effects so it's hard for competitors to thrive, as SNAP has proven. Also, FB reported an average of $4B of free cash flow per quarter so far in 2017 and it had $32B of cash on the books and no debt at 9/30/17. Nearly $10B of FB's cash is offshore, which would benefit from a lower tax repatriation rate.
- **Risks** to our price target include economic weakness, competition, and ad load limits at Facebook.com.

2018 Stock Picks: Activision Blizzard (ATVI, Buy) & Electronic Arts (EA, Buy)

Games Industry Shift. We recommend Activision Blizzard (ATVI) and Electronic Arts (EA) owing to strong industry tailwinds, including: 1) new types of games (i.e., casual games on smartphones) are driving higher TAMs (total addressable market) and strong new gamer adoption; and 2) falling churn is a upside value driver in three ways: a) more years paying into the gaming ecosystem; b) more months playing a single title; and c) longer engagement/day. eSports is a multi-billion-dollar potential upside driver. Barriers to entry are rising because new game titles can cost $100MM to create and launch.

Share Price Performance. Since 2013, ATVI and EA have been strong outperformers owing to: 1) the transition to digital delivery of initial game sales; 2) higher in-game purchases between game updates; 3) rising margins tied to a pivot away from physical toward digital revenue; 4) longer play times; and 5) the transition to annuity-stream business models rather than unit sales.

2018 Outlook. We expect the share price performance to be tied to: 1) network effects and appointment gaming from connected games; 2) strong non-traditional gamer growth driven by mobile games and "freemium" business models; 3) revenue and profits per player are rising, as is the lifetime value per gamer; 4) falling churn is a powerful upside cash flow generator as players spend money on games for 25% more years, play the same title 30% more months, and play more minutes per day compared to 5 years ago; and 5) new revenue stream upside from eSports, advertising, big data, virtual reality, video game viewing, etc.

Valuation multiples have been expanding as business models shift toward annuity streams based on in-game digital purchases with 80% margins, and away from consumers spending $60 for a console game once a year. We calculate valuation several ways but the two we like best are: 1) time spent (only a handful of consumer choices command as much time each day as games for gamers); and 2) evergreen sequel upside (we can't think of another content business that so successfully sells sequels to franchises created 15-20 years ago).

- **Activision Blizzard (ATVI)** investment positives include: 1) ATVI's total addressable market is growing 16%/year as mobile games and freemium business models attract new types of gamers; 2) revenue per player is rising 6%/year as in-game purchases often double revenue/game; 3) churn is falling by 4%/year as gamers spend more time/day, more months playing the same game, and more years in the video game ecosystem; 4) margins are rising 200-300 basis points/year as physical disks transition to digital downloads; 5) risk is falling as ATVI diversifies its revenue streams, genres and platforms; and 6) valuation multiples are expanding as ATVI's business model transitions to annuity streams with uncapped spending per gamer. Risks include competition, hit-driven content, and accounting complexity.
- **Electronic Arts (EA)** TAM growth has been strong with EA stating that its goal is to grow their global, connected community of more than 350MM players today to one billion people over time. This suggests a higher TAM than investors are thinking about and, if EA is successful, a longer runway of revenue growth. In addition, net cash from operations for the trailing twelve months through 9/30/17 was $1.8B, a record. EA is consistently repurchasing shares. In the most recent quarter (September 2017), EA bought back 1.3MM shares for a total of $153MM. EA is adding a subscription service, which we expect will add value in two ways: a) lower friction for casual gamers to try more new games; and b) allow super-gamers to spend more time in favorite game. Risks include competition, hit-driven content, and accounting complexity.

2018 Stock Picks: Roku (ROKU, Buy)

We recommend Roku owing to: 1) strategic position; 2) active user momentum; 3) expanding ARPU's and margins; and 4) rising competitive MOATs.

- **Strategic Position.** Like Netflix, ROKU is a pure-play call on over-the-top (OTT) TV viewing growth, but ROKU has no content risk. ROKU is a platform that aggregates 5,000 OTT channel apps for consumers. Recent announcements and press reports that Disney, Google, Amazon, etc. are launching new OTT channels/services helps ROKU but hurts NFLX.
- **User Growth.** ROKU strongly overdelivered 3Q17 active user growth consensus estimates—and we expect ROKU to do it again in 4Q17. In 3Q17, ROKU added 1.6MM new users, half from retail sales of ROKU sticks and half from licensing its operating system (OS) IP to be built into TVs. This as 30% higher than consensus estimates for user growth. User growth beat Wall Street estimates in 3Q17 because Wall Street underestimated ROKU-TV sales. We expect this to occur again in 4Q17, ROKU's biggest quarter of the year.
- **Competitive MOATs**. ROKU's competitive moats are rising as its IP gets built into more TVs under exclusive multi-year deals. In 3Q17, TVs sold by RCA, Vizio, Sharp, Toshiba, Hisense, TCL, etc. were paying a license fee to ROKU. Philips recently announced it will build ROKU into its TVs. In 2017, ROKU estimates that 20% of connected TVs sold in the US will be ROKU-TVs, up from 13% in 2016, and up from zero in 2014. Why can't Amazon, Google, etc. take this business away from ROKU? Because the large TV makers are afraid of the huge internet companies. They are not afraid of ROKU.
- **ARPU & Margin Expansion.** ARPU per user has risen about $0.50 each quarter so far in 2017. That is, ROKU's 14MM active users generated $2.56 each in platform revenue in 1Q17, 15MM users each generated $3 in 2Q17 and 16.7MM users generated $3.44 in 3Q17. Gross margins on platform revenue ranged from 75% to 77% each quarter. The ARPU per active user grew at 40% in 2016 and is on the same track for 2017 despite 40-45% active user growth in both years. At the same time, ROKU's cost to acquire a customer is falling as more of its users are coming from its ROKU-TV partners.
- **Engagement** lengths for ROKU are nearly three hours per day per user, well above any internet company, suggesting higher monetization potential per user over time. Also, as linear TV viewership falls, it is easy for brands to use their existing 30-second TV spots on ROKU to follow younger audiences.
- **Dual Revenue Streams.** About half of ROKU's revenue comes from advertising and half from licensing and unit sales, suggesting revenue diversification, which lowers risk.
- **Valuation.** Facebook and a radio company are not comps just because they are both ad-driven businesses. Similarly, we would caution against comparing ROKU's valuation to ad-driven internet companies that must pay the "Google tax" to generate traffic. ROKU gets none of its traffic via GOOG. Netflix is the best comp for ROKU (our view) and is valued at a premium to ROKU. Finally, at market caps of $5B for ROKU vs. $83B for NFLX, ROKU has more exit options.
- **Risks** to our price target include competition, content concentration, potential channel conflicts and lack of mobile.

2018 Stock Picks: World Wrestling Entertainment (WWE, Buy)

Source: StockCharts.com

In 1Q14, World Wrestling Entertainment (WWE) was one of the first super-fan content creators to go direct-to-consumer using the internet to deliver a live channel plus a deep library of pro wrestling videos directly to super-fans for $9.99/month, cancelable at any time. This chart shows WWE's share price swoon for the 18 months after launch as WWE invested over $100MM to launch the WWE Network globally. However, now that WWE Network has proven it is working, the market has revalued WWE upwards.

History. For decades, WWE had a Pay-per-View (PPV) business, whereby it charged $40-60/month for 3 hours of programming each month. WWE split this revenue 50%/50% with the cable/telco/satellite operator. In 2013, WWE reported PPV segment revenue of $86MM at a 33% profit margin, or EBITDA of $28MM. For the WWE OTT Network, WWE put all of this PPV content into a direct-to-consumer (DTC) OTT service for $9.99/month. At 9/30/17, the OTT Network had 1.58MM subs globally (about 1.16MM US + 420,000 offshore) and reported $50MM revenue and $24MM of EBITDA (much more than its PPV business).

Focus on Super-Fans. WWE's content strategy is to reach its super-fans with WWE content across all distribution platforms by creating unique WWE content for each platform, including mobile. WWE fans have 360 degrees of content—it's immersive. Because WWE is run by businessmen, a key goal is to maximize revenue per hour of viewing, and not commoditize itself by putting identical content on multiple platforms. WWE puts each piece of content on the single platform that pays them the most per viewer per hour. What's tactically innovative about WWE's execution is that they created unique premium video content segments for each screen, thereby immersing their super-fans in WWE content on all platforms. WWE chooses the highest revenue per viewer hour for each type of content it produces.

Economic Insights. A key financial insight from the WWE Network case study is the dramatic disparity between online and TV economics. In the first nine months of 2017, digital video views (mostly YouTube) reached 14.2B for WWE, up 23% y/y, and social media followers were more than 825MM, up 17% y/y over the first 9 months of 2016. At the current rate, total digital video views will reach about 19B in 2017. However, we estimate that total payments to WWE will be only $20MM, implying about 1 penny per view. This is a miserable monetization rate compared to the $0.12 per hour that WWE receives globally from its traditional Pay TV distributors.

Investment Implications. Online monetization is so anemic that it would be nearly impossible to create a competitive new entrant based on YouTube revenue alone. WWE uses YouTube as a marketing platform to promote the WWE brand and its wrestlers. It views it as a marketing cost, although it essentially breaks even. We believe that the greatest success online will be in identifying super-fan niches that are willing to pay for certain types of content.

Risks to our target price include rising content costs, slowing global subscriber growth for the OTT Network, and potential saturation of super-fans for WWE content.

Appendix A

We are intrigued by innovation occurring in digital video. We recommend investors pay special attention to the following private companies.

alloydigital	Alloy Digital is a multi-platform, next-generation video company targeting the highly coveted, early adopter 12-34-year-old demographic. It offers a top-10 video network, which delivers several hundred million monthly streams and includes award-winning Smosh, the #1 YouTube channel, as well as Shut Up! Cartoons.
Big Frame	Big Frame is a leading media company in the YouTube video entertainment space, connecting advertisers with their highly engaged audiences. The biggest advertisers in the most competitive industries work with Big Frame to reach active, engaged and demographically focused audiences.
BRIGHTLINE Watch. Engage. Convert.	BrightLine is the leading provider of rich media interactive advertising over televisions. It creates interactive TV experiences for advertisers, and gives advertisers the tools to design interactive video experiences over the TV screen, and in-App-based Smart TV environments. BrightLine uses proprietary data-driven design tools backed by 10 years and over 500 campaign executions.
BuzzFeed	BuzzFeed is a social news and entertainment site, covering global media and technology topics, such as politics, DIY, animals and business. The site includes text and video, serious journalism, and fun and entertainment-oriented content. In video, BuzzFeed has created "The Creepiest Series" and "Fun Facts."
CARBON media group	Carbon Media Group connects advertisers with the largest digital audience of outdoor enthusiasts, in text and video. Carbon builds innovative production and creative services that help strengthen brands to ensure their online marketing campaigns are successful.
EXTREME REACH	Extreme Reach is the leading provider of video ad management, delivery and measurement solutions across TV and digital media. Its cloud-based platform streamlines the execution and measurement of cross-media video campaigns from pre-production through campaign analytics, and is the only platform that integrates video delivery with talent payment and rights management.

eyeview	Eyeview is a video advertising technology company and the market leader in providing brands with ROI on their video advertising spending online.
grapevine	Grapevine is a YouTube influencer network that allows brands to find and pay YouTube content creators to create marketing content that reaches their fan base. Grapevine makes it simple and easy to find and manage the wide array of YouTube sponsorship opportunities. Grapevine is not a multi-channel network (MCN) and therefore is used as a compliment to MCNs.
interlude	Interlude makes interactive music videos. Viewers lean forward and engage, making choices that reflect their preferences and replaying the video multiple times to explore alternate paths. By combining the reach of digital video with the engagement of gaming, Interlude has created a new form of entertainment.
Kaltura open source video	Kaltura allows enterprises to upload videos to a centralized location and distribute them to multiple destinations, such as YouTube, Hulu and DailyMotion, at the click of a button. All public videos are automatically indexed by leading search engines, including Google and Bing. Kaltura has a leading in-player recommendation gallery and deep integration with discovery tools.
LittleThings	LittleThings is the only digitally native media property that scales uplifting content while influencing women across generations. Headquartered in New York City, LittleThings is the leading lifestyle destination for inspiring, uplifting, and engaging content.
MACHINIMA	Machinima is the world's most powerful and enthusiastic gamer network, providing gaming-focused programming to the 18-34-year-old male demographic. It reaches 190 million-plus unique gamers each month, with over 2 billion videos viewed. Its video content is distributed on YouTube, Facebook, Twitter, iOS, Android, and the Xbox 360. It produces high-quality editorial content and offers a suite of applications, tools and technologies that motivate and engage its audience.

MOAT	Moat develops technologies and products for brand advertisers and premium publishers. Products include Moat Intelligence and Moat Analytics. Moat measures viewability of the video ad units, so publishers can charge advertisers only for ads deemed "viewable" by Moat's measurement technology.
reelio	Reelio's mission is to make it easier for talented creators to support themselves on digital platforms through the video content they create. Reelio achieves this by connecting brands with YouTube creators who are interested in sponsorship opportunities. Brands can also post campaign opportunities to Reelio's Influencer Marketplace, where YouTube creators can review and apply to opportunities that interest them.
Tastemade	Tastemade is a video network built for the mobile generation. It creates video content for all screens, from smartphones to connected TVs, and reaches a global community of 88 million people each month. Using Tastemade's platform, Tastemakers come together to discover and share their passion for great food and travel.
vevo	VEVO is the world's leading all-premium music, video and entertainment platform, available in the U.S., Australia, Brazil, Canada, France, Ireland, Italy, New Zealand, Spain and the U.K. through VEVO.com, the mobile web, mobile and tablet apps, Connected Television (Xbox, Roku) and user embeddable video players. VEVO is a joint venture between Universal Music Group and Sony Music.
videology	Videology simplifies big data to empower marketers and media companies to make smarter advertising decisions to fully harness the value of their audience across screens. Its math/science-based technology enables customers to manage, measure and optimize digital video and TV advertising to achieve the best results in the converging media landscape.

VUBIQUITY	Vubiquity is the leading global provider of multiplatform video services, helping to bring the most innovative, advanced video services into consumers' homes and onto their connected devices. Vubiquity offers the industry's most complete portfolio of multiplatform video services, including TV Everywhere, VOD, linear television delivery, advanced advertising and data analytics. Vubiquity gets its customers to market faster, at a lower cost, and with greater flexibility than they could on their own.
WIDEORBIT	WideOrbit is the leading provider of advertising management software for media companies. It provides innovative, proven solutions for managing the business of broadcast and cable operations, from proposal to order, scheduling to automation, billing and AR/aging. More than 2,700 television stations, radio stations and media networks around the globe use WideOrbit Traffic software and another 3,200-plus stations operate on WideOrbit Radio Automation platforms. WideOrbit software manages more than $30 billion in advertising revenue annually.

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Company	Symbol	Closing Prices 1/2/18	Rating	Disclosures
21st Century Fox	FOXA	$35.86	Hold	B, G
Activision Blizzard	ATVI	64.31	Buy	B, G
Alphabet	GOOG	950.70	Buy	B, G
Amazon.com	AMZN	1,065.00	Buy	B, G
Apple	AAPL	172.26	Buy	B, G
CBS	CBS	59.17	Buy	B
CISCO Systems	CSCO	38.86	Hold	B, G
comScore	SCOR	28.42	Rating Suspended	B, G
Discovery Communications	DISCA	23.11	Hold	B, G
Electronic Arts	EA	109.45	Buy	B, G
Facebook	FB	181.42	Buy	B, G
Netflix	NFLX	201.07	Hold	B, G
Nielsen Holdings	NLSN	36.66	Buy	B
Roku	ROKU	52.07	Buy	B, C, D, G, J
Scripps Networks	SNI	86.64	Hold	B, G
Snap	SNAP	14.95	Underperform	B
Time Warner	TWX	91.91	Hold	B
Viacom	VIAB	31.19	Hold	B, G
Walt Disney Co.	DIS	111.80	Hold	B
World Wrestling Entertainment	WWE	31.41	Buy	B

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The Future of Media

The Battle. The US TV ecosystem will generate $170B of revenue in 2017, we estimate. AAPL, AMZN, FB and GOOG (Internet Aggregators) have each announced that they will spend $3-6B in 2018 to create premium video content in an effort to take revenue, viewers, and time away from the incumbent TV and film content creators and distributors. Internet Aggregators have global revenue streams, huge market caps, enormous free cash flow, strong consumer brands, and no qualms about destroying incumbent media ecosystem economics. As their growth slows, the focus of the Internet Aggregators has turned to elongating consumer engagement time and improving their competitive moat. Creating and/or owning premium long-form TV, film and video content achieves both. Ultimately, their war will be against one another, but we believe that garnering economics from the US TV and film incumbents is a key tactical battleground toward that end game. Regulators should view the Internet Aggregators as competitors when assessing media mergers.

What We Know. Data points so far suggest that the future of TV is about: 1) the future of digital video; 2) proliferating TV/video distribution alternatives, which are fragmenting audiences, making reach more valuable; 3) more direct-to-consumer (DTC) streaming channels are coming; 4) revenue from DTC and skinny bundle aggregators largely benefits the content incumbents; 5) more premium video content is being produced (over 400 new series in 2017); 6) US consumers are paying more and spending more time watching TV shows and films; and 7) young people (under 35) have different viewing habits. These established trends should continue.

Near Term Implications. Near term, new deep-pocketed competitors raise the cost to create and purchase premium video, TV, and film content, which hurts the margins of the incumbent content conglomerates we cover (i.e., CBS, DIS, DISCA, FOXA, SNI, TWX, VIAB). More great content also accelerates audience fragmentation, which lowers ad revenue. It also gives brands more places to spend their TV ad dollars. Consolidation (which helps profit margins and adds scale) is a reasonable strategic option if US regulators will approve mergers.

Who Wins? We believe the battle to create hit content will not be won by money alone, that hit long-form video content is hard to make and slow to accumulate, that outstanding visual storytellers are rare, and that corporate culture and managers matter. A powerful economic weapon is TV's dual revenue stream business model, which any single revenue stream will find hard to disrupt. Cluster theory jettisons the notion of competitive advantage as a concept relating to a single company and instead redefines competitive advantage based upon the geographic location of an ecosystem of companies, which suggests that content creation will remain in Hollywood and technology will remain in the Silicon Valley. Ultimately, we believe the incumbent content conglomerates get bought by the Internet Aggregators for their deep TV and film libraries, and are managed separately to attract, retain and motivate creative visual storytellers that have the ability to work in large creative teams to create 30, 60 and 120+ minute stories that resonate with broad audiences globally. Hollywood's core competence is creating and mirroring pop culture. The Silicon Valley's core competence is changing the world through technology.