

Technology Trends

Media

Center for Learning in Retirement

CLR Fall 2020

Glen Maxson & Alan Freedman

Week 7

The What

- ~~Artificial Intelligence & Machine Learning~~
- ~~Robots & Drones~~
- ~~Autonomous Transportation Systems~~
- ~~Surveillance~~
- ~~(Cyber) Crime, Security & Warfare~~
- ~~Medical Tech~~
- Media
- (Virtual) Money & Blockchain
- Communication
- Earth & Sky
- Space

Media

- The evolution of news, radio, TV, music, movies... how cable-cutting changes everything



Sara DeWitt
3 fears about screen time for kids – and why they're not true
Posted Oct 2017
Rated Informative, Persuasive



Chris Milk
The birth of virtual reality as an art form
Posted Jun 2016
Rated Inspiring, Beautiful



Monica Lewinsky
The price of shame
Posted Mar 2015
Rated Courageous, Inspiring



Wadah Khanfar
A historic moment in the Arab world
Posted Mar 2011
Rated Inspiring, Courageous



James Surowiecki
The power and the danger of online crowds
Posted Nov 2008
Rated Informative, Persuasive



Jonathan Drori
What we think we know
Posted Sep 2008
Rated Informative, Fascinating



Nicholas Negroponte
5 predictions, from 1984
Posted Mar 2008
Rated Fascinating, Informative



David Pogue
Simplicity sells
Posted Jun 2006
Rated Funny, Informative

[Simplicity Sells – David Pogue](#)

[The Power and Danger of Online Crowds – James Surowiecki](#)

News

What is news in the 21st century? - The Conversation

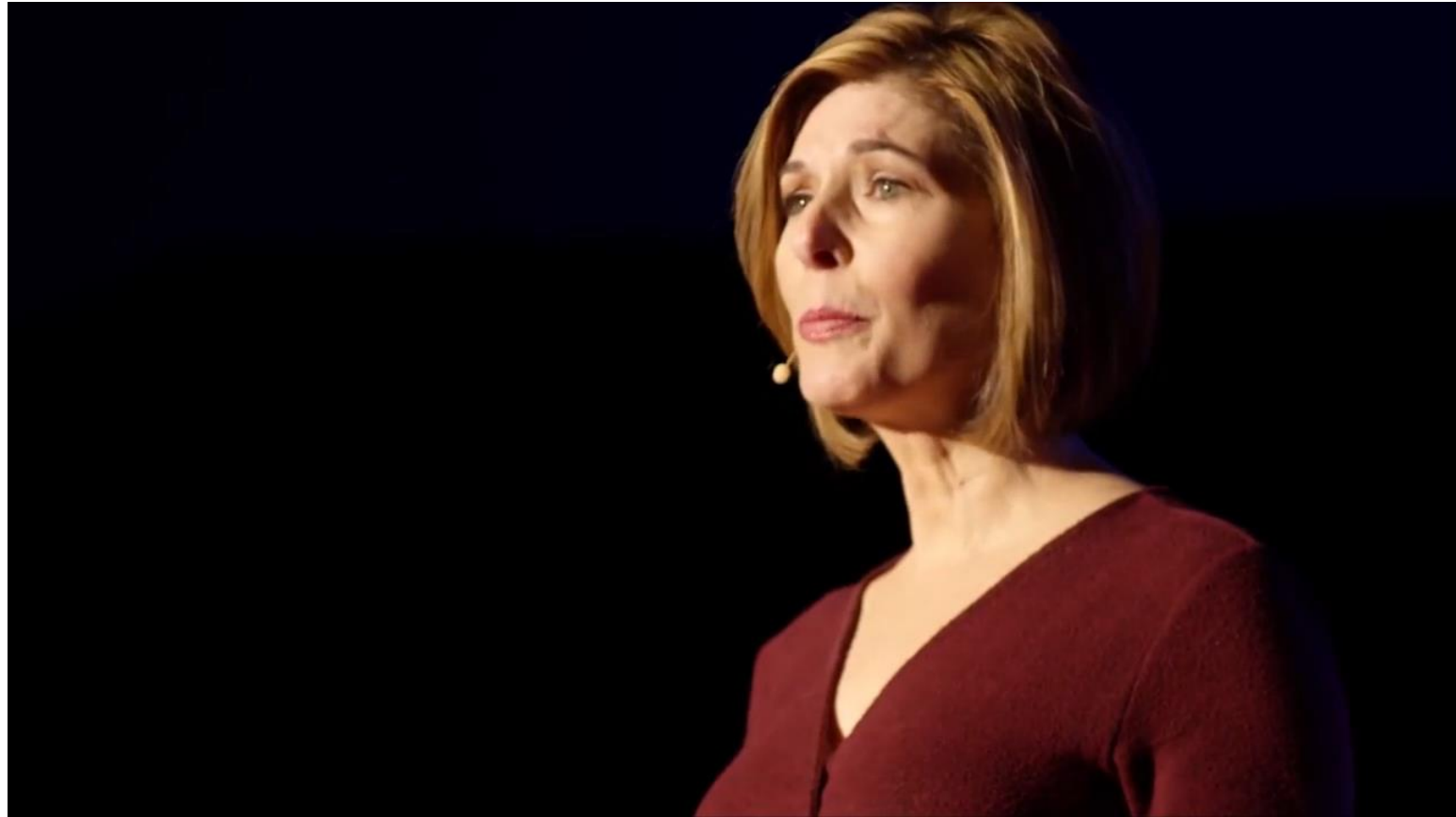
- Past - The “gatekeepers” (journalists and editors) decide what is news and how it should be reported and disseminated.
- Present - we have direct access to the editor via Twitter, we instantly comment on stories, and we produce content and share it online. We have become a legitimate source of information for conventional journalists.
 - News is the information people need to make rational decisions about their lives.
 - News is “a commodity. It can be bought, sold, and traded”.
 - It’s becoming difficult to nail down what exactly news is these days, because everyone is potentially a journalist.
- It’s not a matter of news produced and shared on social media platforms being better or worse than that generated by traditional news-producing techniques. It comes down to the contextual meaning and relevance of news to its audiences – and this is something that involves both professionals and broader civic society.

So What's New(s)

[The technology that powers the 2020 campaigns \(link\)](#)

- **Voter data galore**
 - most voter files probably have somewhere between 500 and 2,500 data points per person
 - Since the Democratic Data Exchange (or DDx) came online, it has aggregated over a billion data points
- **Data exchanges**
 - allow campaigns and PACs to share data, making outreach and messaging more efficient
 - Ex. DDx can produce a dashboard that shows how comfortable each voter is with voting by mail
- **Next-level microtargeting**
 - Facebook lets campaigns target small groups and individuals
 - Google banned political microtargeting early this year, Twitter has banned political ads from campaigns
- **Out with the polls, in with the AI models**
 - campaigns are turning to machine learning and AI to predict how voters will behave
 - campaigns use is called scoring, then use those likelihoods to inform their strategy – more data, better accuracy
- **No shared truths**
 - Personalized messaging means that each person's view of a campaign differs

How Real Is Fake News? | Sharyl Attkisson (7 min)



Fake News

[How Real Is Fake News? | Sharyl Attkisson \(2018\)](#)

- What is fake news? When did it begin? Who's behind it?
- Fake News defined: **Fake news** is a type of [propaganda](#) that consists of deliberate [misinformation](#) or [hoaxes](#) spread via traditional print and broadcast [news media](#) or online [social media](#). This false information is mainly distributed by social media, but is periodically circulated through mainstream media.
- Follow the Money: Google/Alphabet – [Eric Schmidt](#) and [First Draft](#)
- Anti-fake news campaign backfired – coop'd by Trump
- Lesson: When the media tries to shape facts rather than report them, and when so many in the media are reporting the same stories... it might be the result of an organized campaign...

The truth about fake news and how to protect against it | Jonathan Albright (15.5 min)



Fake News

[The truth about fake news and how to protect against it | Jonathan Albright](#) (2017)

- Social media ‘responsible’ for 2016 US election and Brexit results
- Network graphs show patterns – structure
- Fake News – better ‘Mis- and Dis-Information’
- Fake News – way to invalidate reporting and efforts to hold politicians accountable
- Majority of traffic from ‘unpaid search’ – visual representation*
- Micro-propaganda – targeting, capturing emotions, using reactions posted on social media gives data to companies (Cambridge Analytica?)
- Sites are about capturing and tracking behavior
- Social Media and (networks of) Bots influence trends, predictions
- Users recruited into ‘hash-tag activism’ groups – amplification of topics
- Resources polluted with information from Twitter botnets, Facebook algorithms...
- Internet monetized thru ‘attention’ - need system that reverses this trend
- Turn off Google [‘instant predictions’](#), turn off Google [‘verbatim’](#) (removes embedded news...)

7 Types of Mis- and Disinformation

False Connection

When headlines, visuals or captions don't support the content

False Context

When genuine content is shared with false contextual information

Manipulated Content

When genuine information or imagery is manipulated to deceive

Satire or Parody

No intention to cause harm but has potential to fool

Misleading Content

Misleading use of information to frame an issue or individual

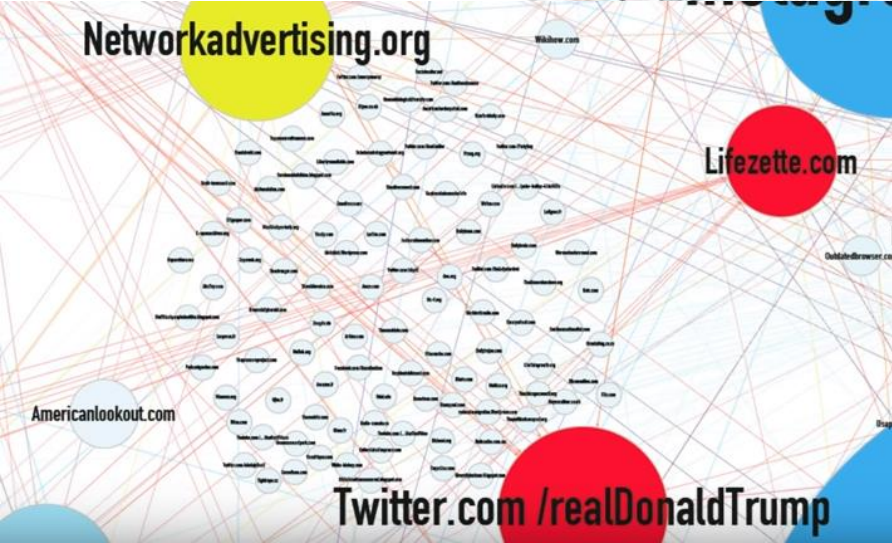
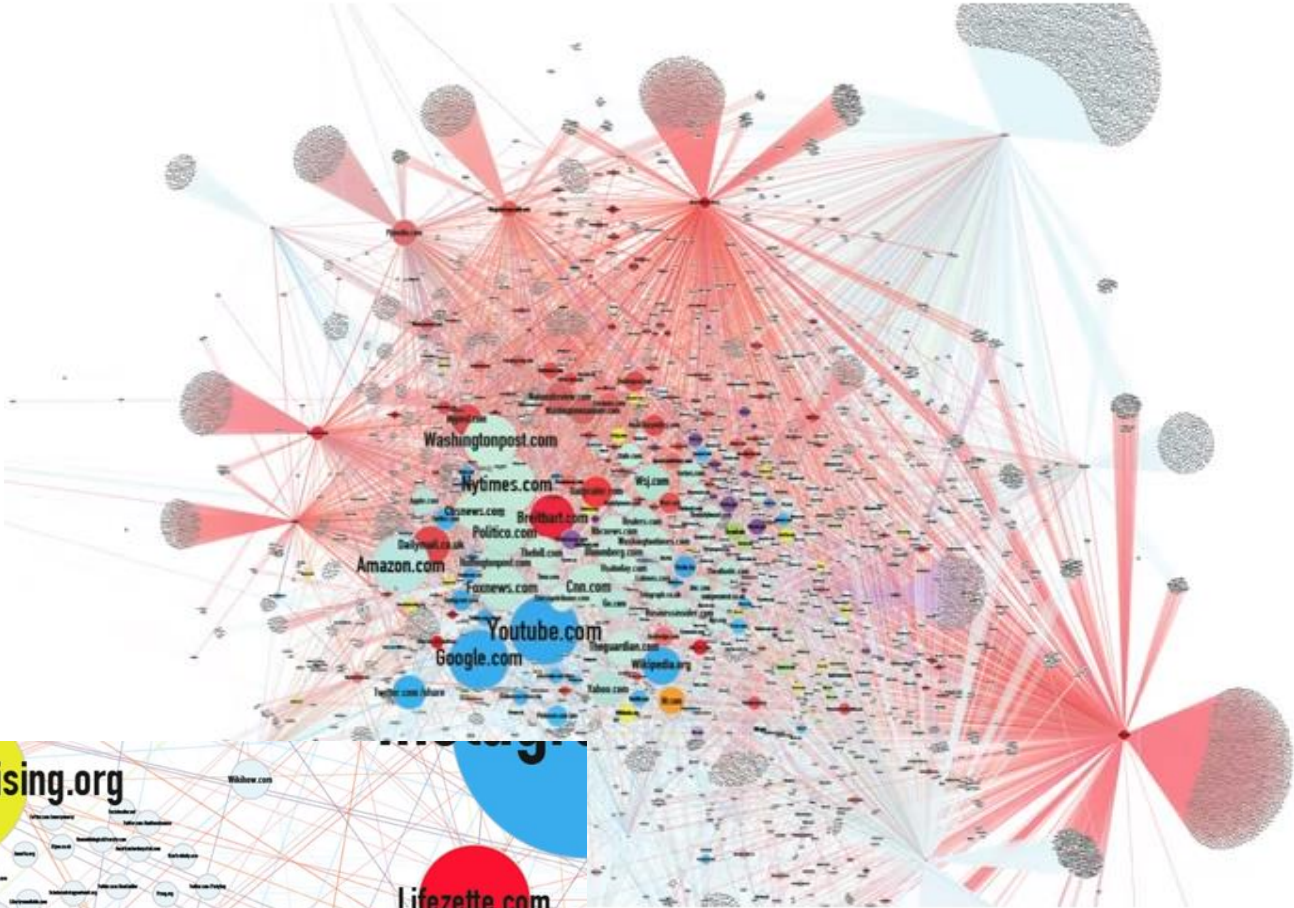
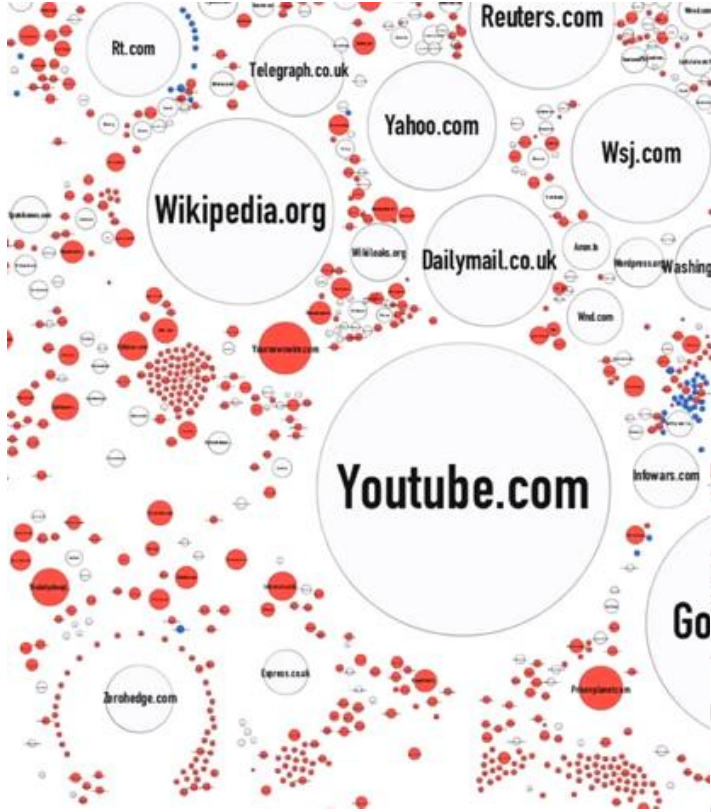
Imposter Content

When genuine sources are impersonated

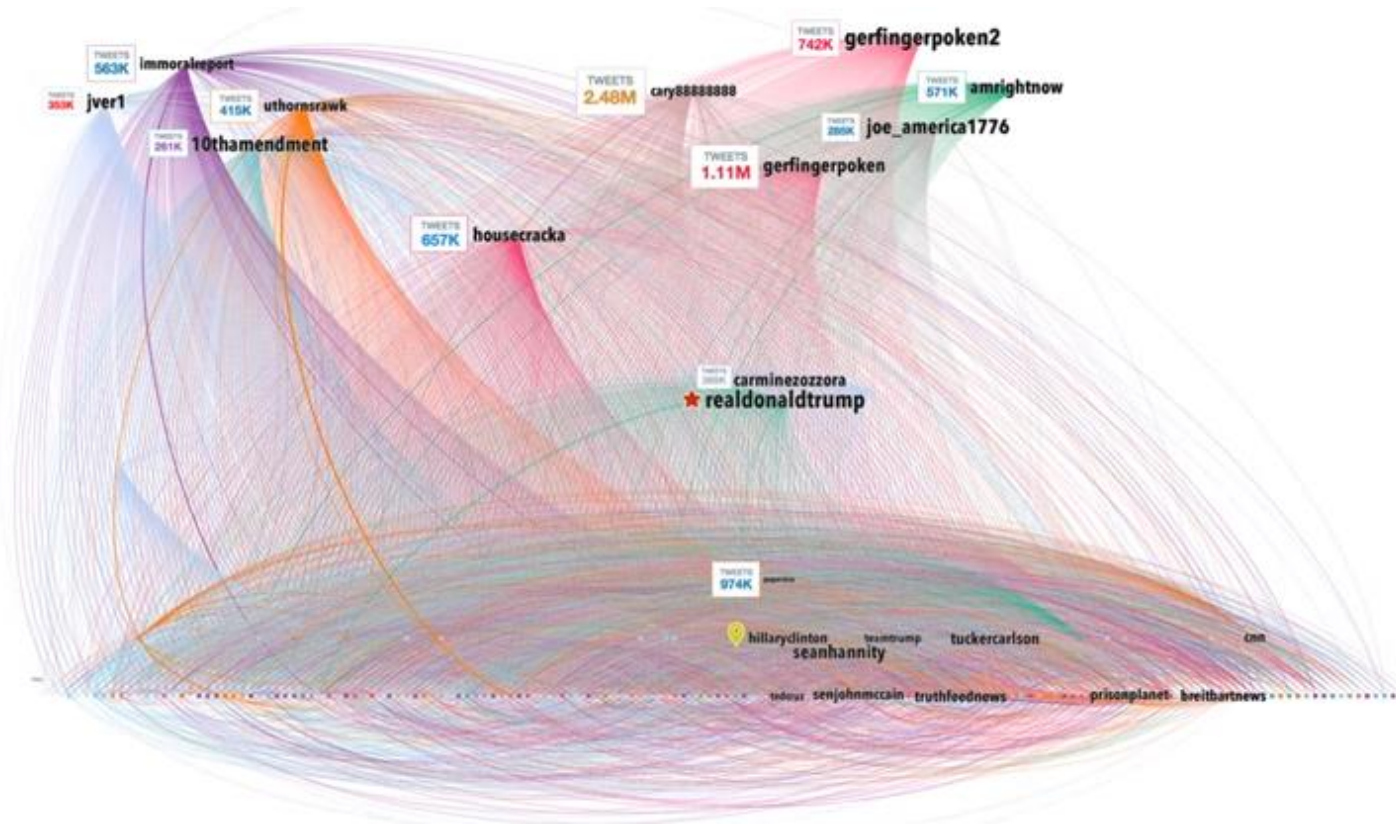
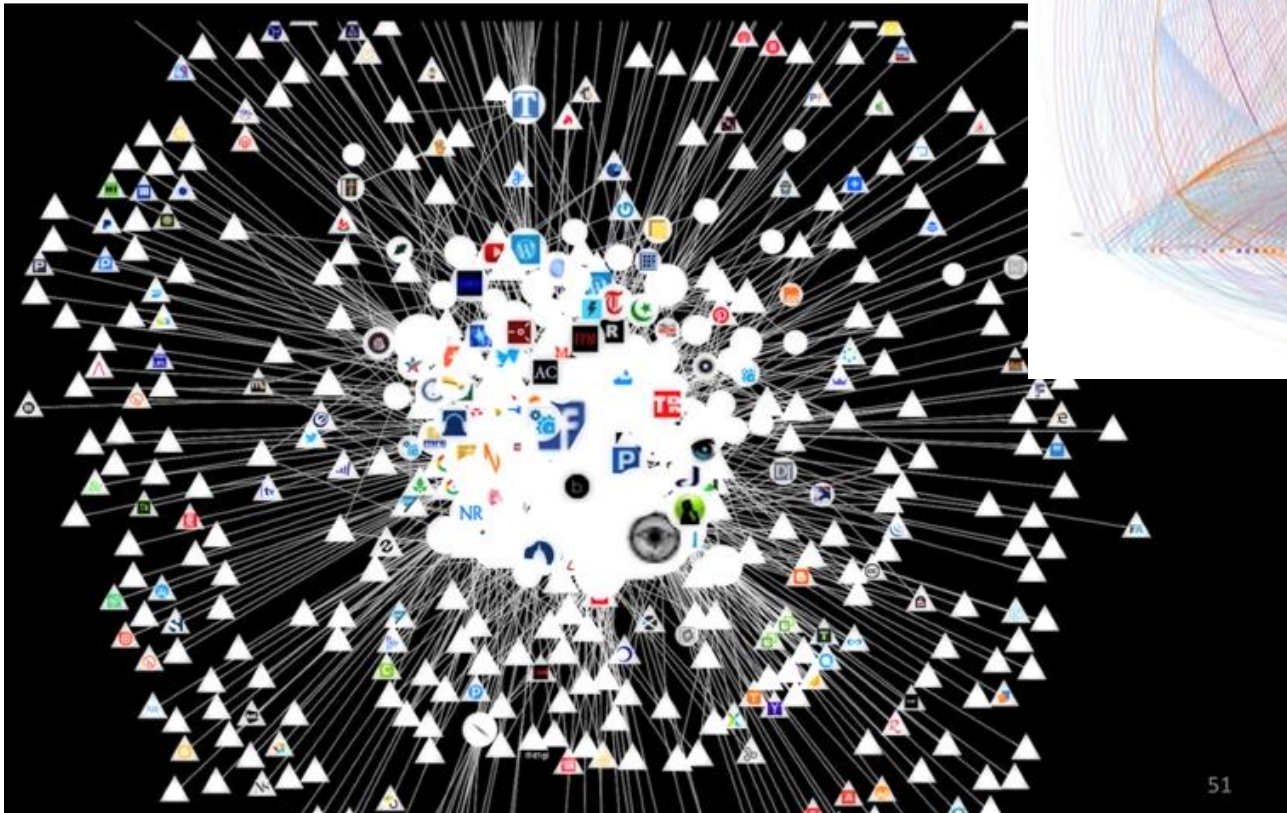
Fabricated Content

New content, that is 100% false, designed to deceive and do harm

Fake News Universe



Influential Bots



An Internet bot, [web](#) robot, robot or simply bot, is a [software application](#) that runs automated tasks (scripts) over the [Internet](#).^[1] Typically, bots perform tasks that are simple and repetitive, much faster than a person could. The most extensive use of bots is for [web crawling](#), in which an automated script fetches, analyzes and files information from web servers. **More than half of all web traffic is generated by bots.**

News Resources

- [What is news in the 21st century? - The Conversation](#)
- [Is Twitter the news outlet for the 21st century? - ABC News](#)
- [Managing a 21st-century newsroom workforce: A case study of NYC news media](#)
- [4 News Media — 21st Century Literacy](#)
- [The Silent Partner: News Agencies and 21st Century news | Johnston](#)
- [...](#)
- [Fighting fake news: information literacy in the 21st century | Charlotte ...](#)

Radio

- Generation Z (people born after 1995) account for 40% of all consumers in the U.S., and by 2020, shows little interest in traditional media, including radio, having grown up in an on-demand digital environment ([PARADIGM SHIFT: WHY RADIO MUST ADAPT TO THE RISE OF DIGITAL](#))
 - A New Challenge: digital services change the way people listen
 - From Tastemaker to Validator: radio's role as minter of hits is weakening
 - Dawn of the Digital Generation: Gen Z (digital natives) not interested in AM/FM
 - Discovery Migration: YouTube, Spotify, Pandora... where you 'discover' new music
 - Revenue, or Lack Thereof: digital services are a source of discovery and revenue
 - Dashboard Invasion: car infotainment systems, commercial-free digital services
 - Talking Is Not the Cure: Wifi-connected 'smart speakers' use digital streaming services
 - Improper Measurement: Portable People Meters don't account for the passion a listener feels toward specific stations – system can be gamed and advertisers don't get the information they need

THE FUTURE OF RADIO: TIME FOR BROADCASTERS TO EMBRACE DIGITAL

“RATHER THAN RESIST THE DIGITAL AGE, RADIO MUST EITHER RIDE THE DIGITAL WAVE OR HAVE IT CRASH ON TOP OF THEM.”

“YOUNGER LISTENERS (12-24 YEARS OLD) HAVE FLED TERRESTRIAL RADIO ON A MASSIVE SCALE.”

“DIGITAL IS WHERE THE MARKET IS MOVING, AND IT’S WHAT LISTENERS CRAVE.”

“PERHAPS US RADIO’S HESITATION TO ADOPT STREAMING IS BASED IN PART ON THEIR RELUCTANCE TO COMPENSATE THE CREATORS OF SOUND RECORDINGS.”

The future of radio: Seven important trends

The medium will be transformed in the coming several years

- **The collapse of Big Radio.**
- **A renaissance of local radio.**
- **Radio will go entirely digital.**
- **The merging of radio, TV and news under single operators.**
- **A revolution in radio content.**
- **A transformation of the industry** - radio encompasses all things audio
- **An opportunity for radio to grab** a larger share of consumers' time and attention

The Future of Radio Technology - Four Important Trends

- **Easy Access to Your Favorite 'Local' Radio from Anywhere in the World**
- **Smartphones with FM Chips**
- **FM Translators Will Boost HD Radio**
- **In-Car Music Radio Apps**

Radio Resources

- [From FM to the Smartphone: The Evolution of Radio Media](#)
- [Traditional Radio Faces a Grim Future, New Study Says – Variety](#)
- [What Does the Future of Radio Look Like? - Radio Magazine](#)
- [Will 'Generation Z' spell the end of traditional terrestrial AM/FM radio?](#)
- [The Future of Radio: Time for Broadcasters to Embrace Digital - Music ...](#)
- [A Closer Look At The Future Of Radio - Radio Ink](#)
- [The lowdown: what does the future hold for radio? - RadioKing Blog](#)
- [The future of radio: Seven important trends - Media Life Magazine](#)
- [And the Future of Radio is... | Mark Ramsey Media LLC](#)
- [The Future of Radio - Four Important Trends | RGB Broadcasting](#)

It's a great time to be working in television (3 min)

We're in what's considered a golden age of TV. Is this a good time to be working in television?

Television

“It’s a great time to be working in television”

- What are the changes TV is going through?
 - PUTs – people using television – stable then 2015, half the audience gone
 - People like choice and control
 - Give people what they want to watch but in a way they want to consume it
- Tipping point – cable no longer the default
 - Netflix – 85% not Netflix shows – effective, cheap for consumer
 - Issue – bundle price/value changing, services merging
 - Giving control back to consumer, still bundling, and more features

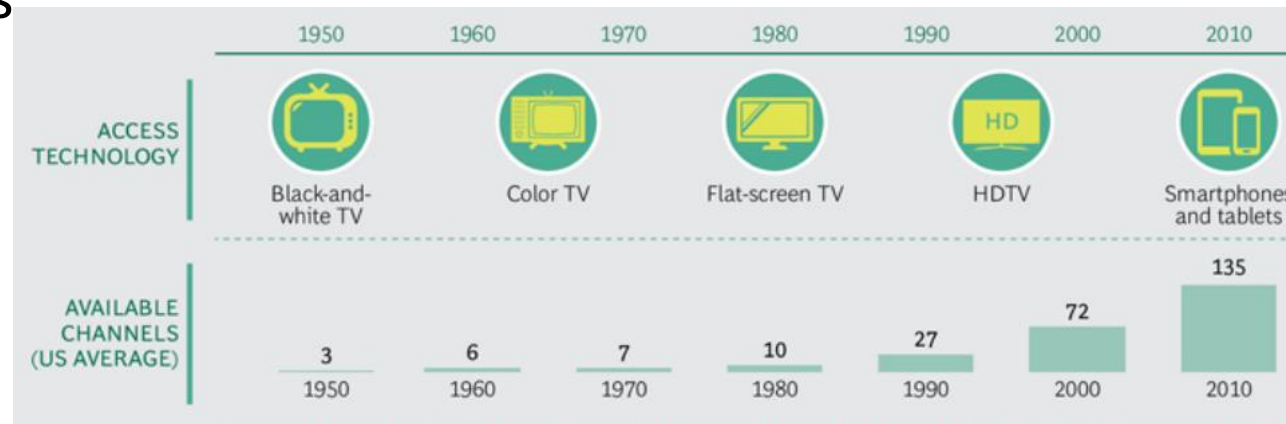
Question: What role does advertising play as more consumers ‘time-shift’ (DVR) or subscribe to services that suppress commercials?

Television

The Digital Revolution Is Disrupting the TV Industry

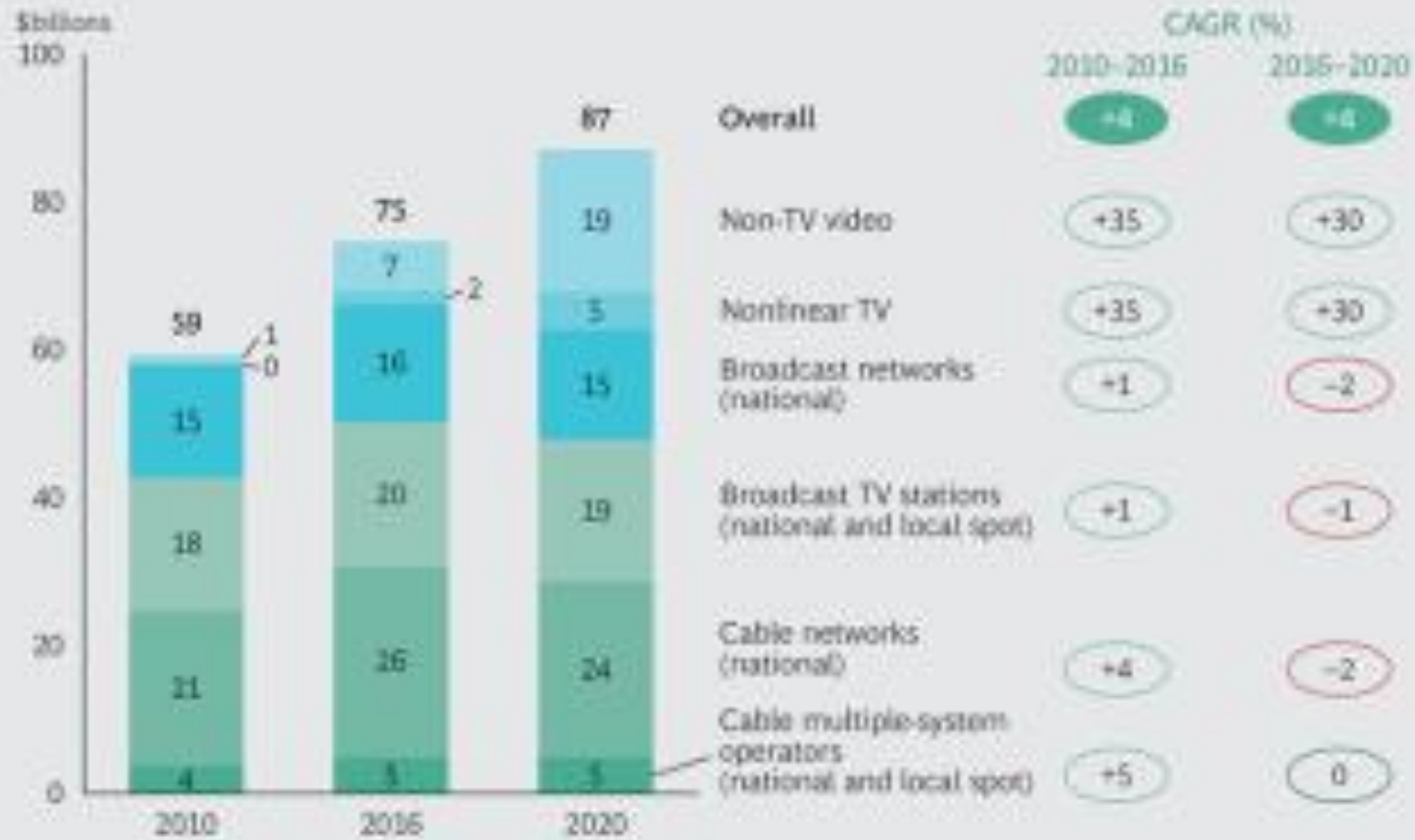
- KEY ENABLERS OF THE NEW ONLINE ECOSYSTEM

- Advances in Technology – **broadband infrastructure supports streaming**
- Availability of High-Quality Online Content – Netflix, Hulu, YouTube, Amazon...
- New, Low-Cost Content-Production Models – digital studios, semi-pro content creators



The Future of Television: Where the US Industry Is Heading

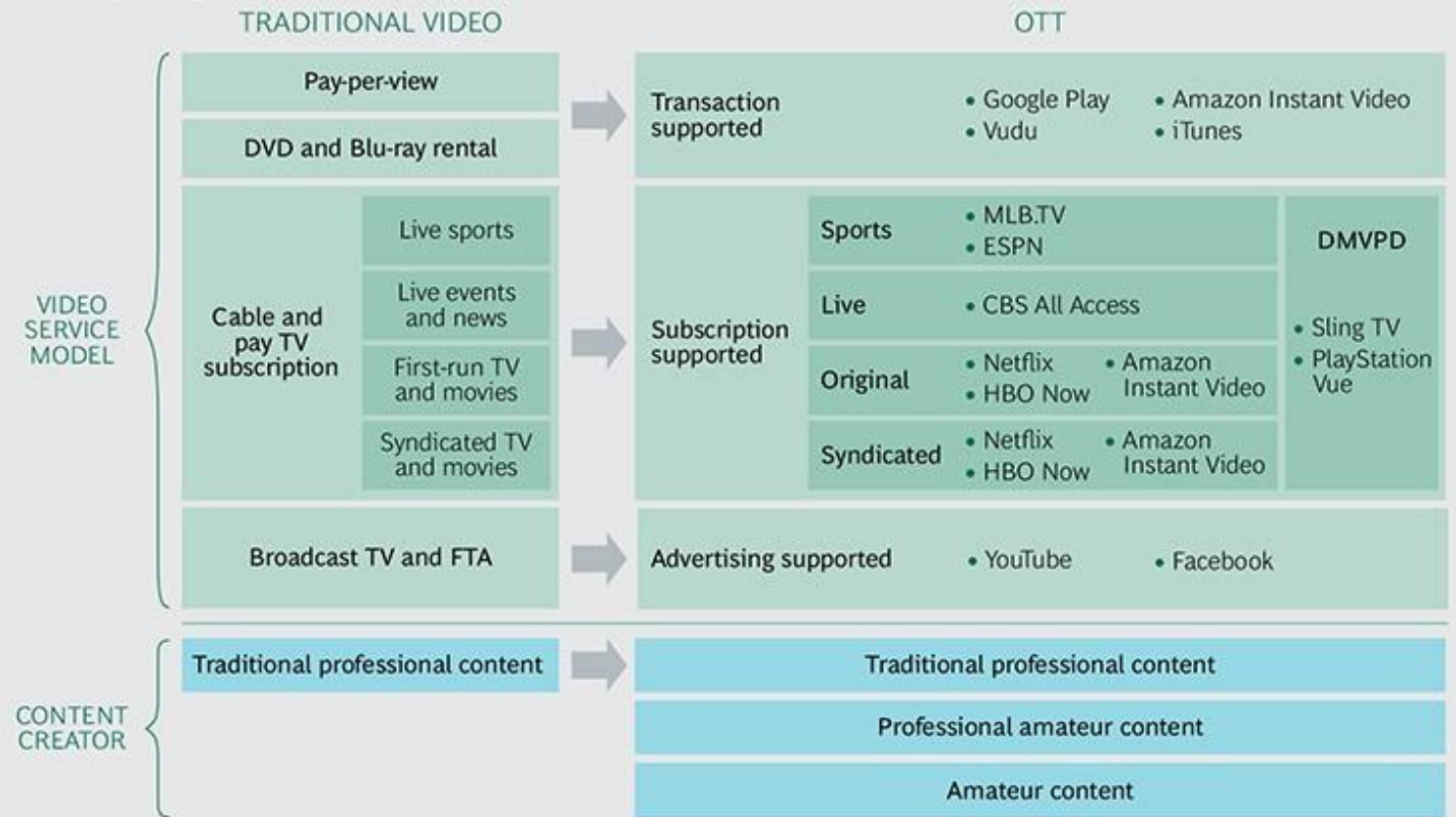
EXHIBIT 2 | Ad Revenue Is Shifting Across Video Distribution Channels



Source: BCG analysts.

compound annual growth rate (CAGR)

EXHIBIT 1 | OTT Replicates Traditional Video in a Digital Context, with New Content Creators Participating



Source: BCG analysis.

Note: FTA = free-to-air television; DMVPD = digital multichannel video programming distributor.

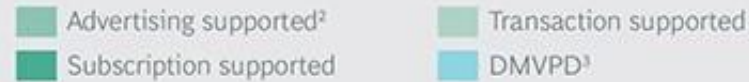
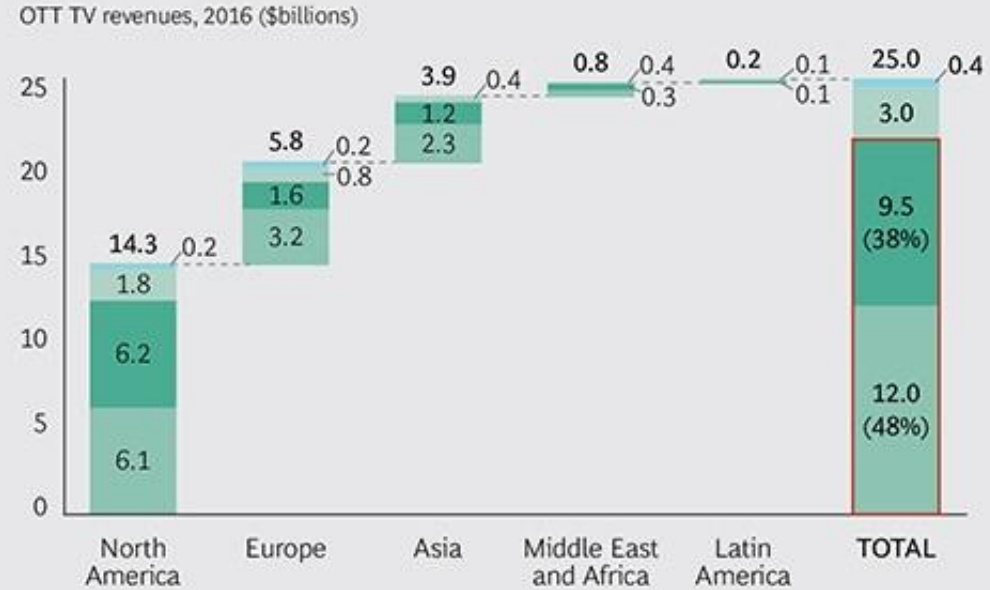
over-the-top (OTT) video platforms

EXHIBIT 2 | Advertising Supported and Subscription Supported Represent Most OTT Services and 80% of OTT TV Revenues

OTT SERVICES WORLDWIDE



OTT TV REVENUES WORLDWIDE



Sources: Ovum; SNL Kagan; press reports; BCG analysis.

Note: DMVPD = digital multichannel video programming distributor. Because of rounding, not all numbers add up to the totals shown.

¹Based on a representative list.

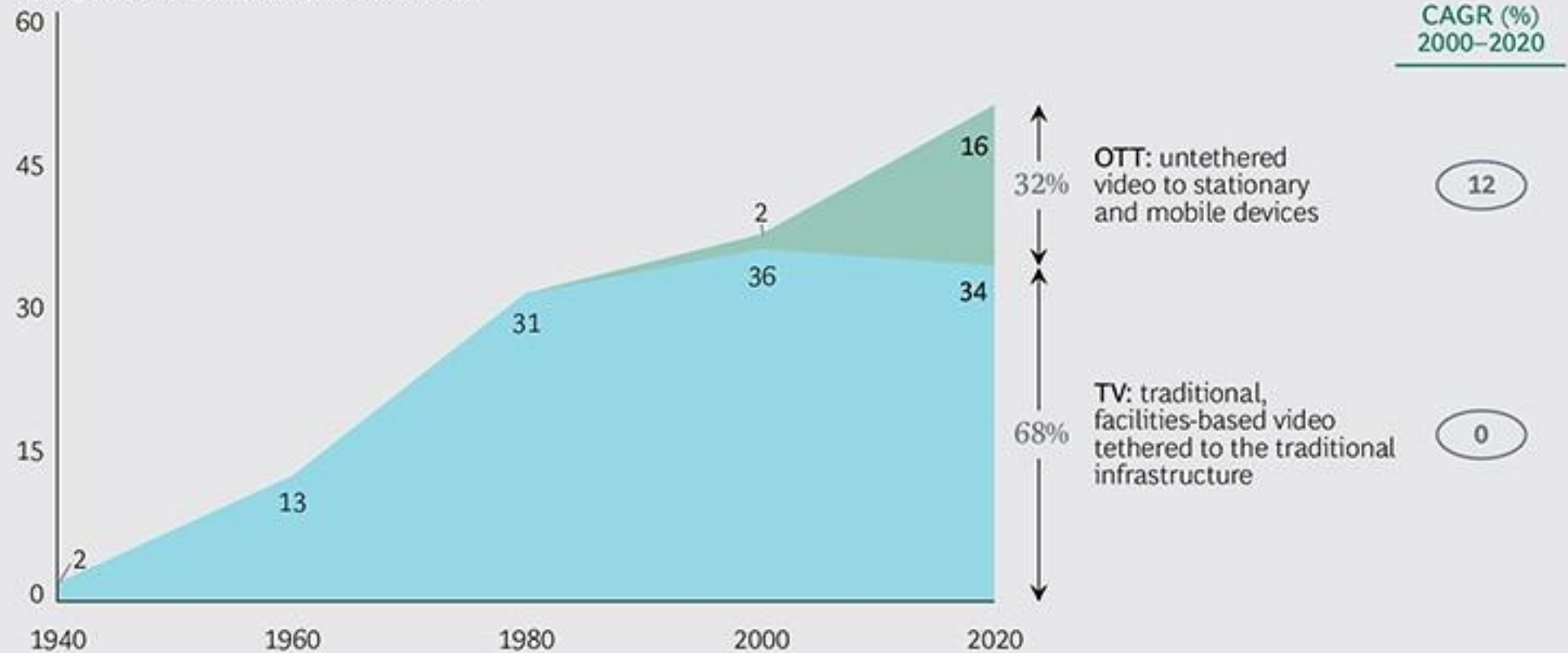
²Includes all estimated advertising-supported OTT revenues for film and TV.

³Based on the combined revenues of Sling TV, PlayStation Vue, fuboTV, Viaplay, and NowTV.

⁴OTT services operating under multiple revenue models: for example, Icflix, in the United Arab Emirates, has both advertising-supported and subscription-supported offerings.

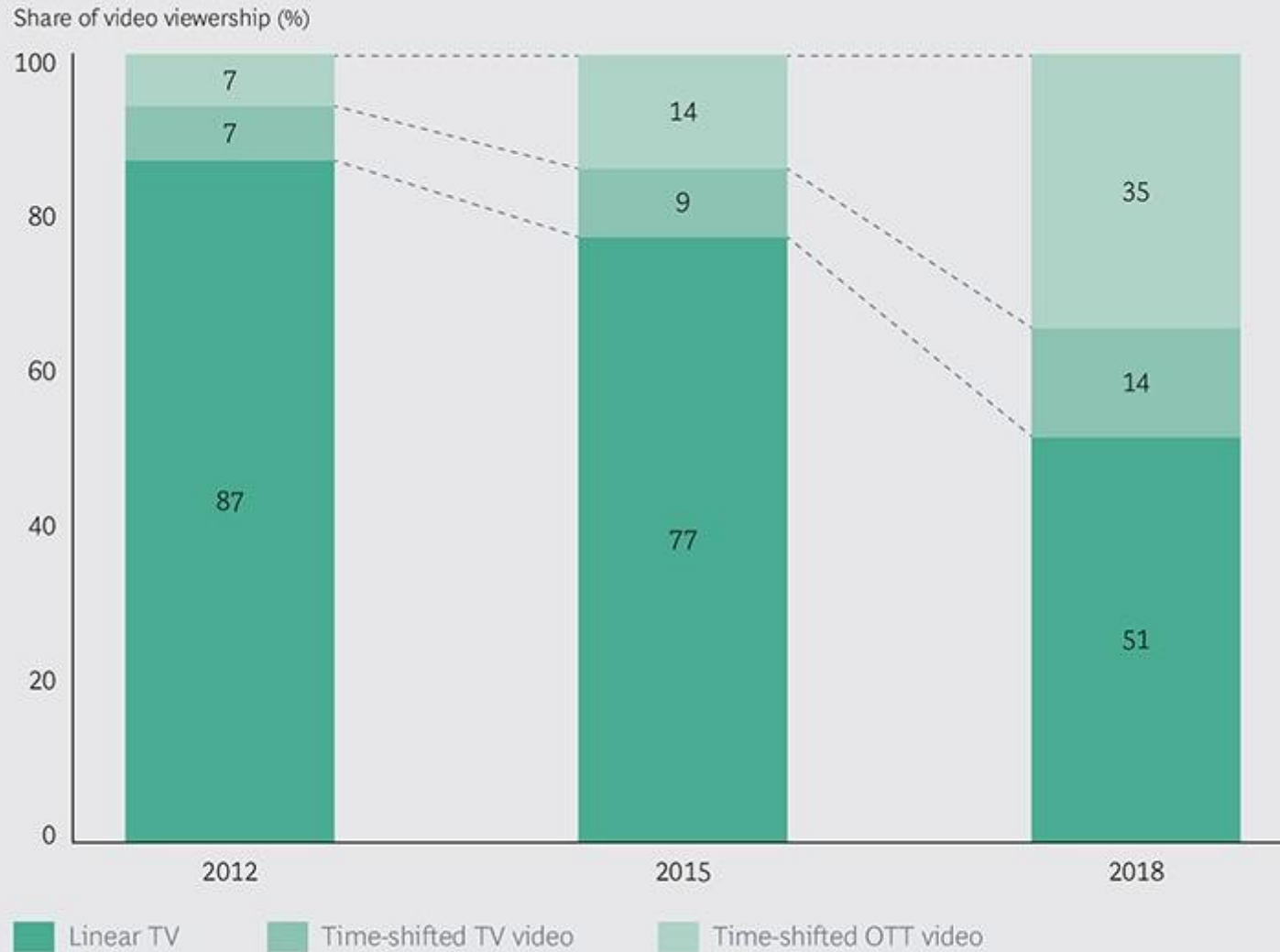
EXHIBIT 5 | Global Video Consumption Is Higher Than Ever, and OTT Is Driving Incremental Viewing

Average video consumption (hours per week)



Sources: BARB/AdvantEdge; Carat insight media survey; CIM TV; eMarketer; Eurodata TV; European Technographics Online Benchmark Survey; Gallup TV-Meter system; Médiamétrie; MMS; Nielsen; BCG analysis.

EXHIBIT 6 | Nonlinear Viewing in the US Is Expected to Increase from 25% to 50% by 2018

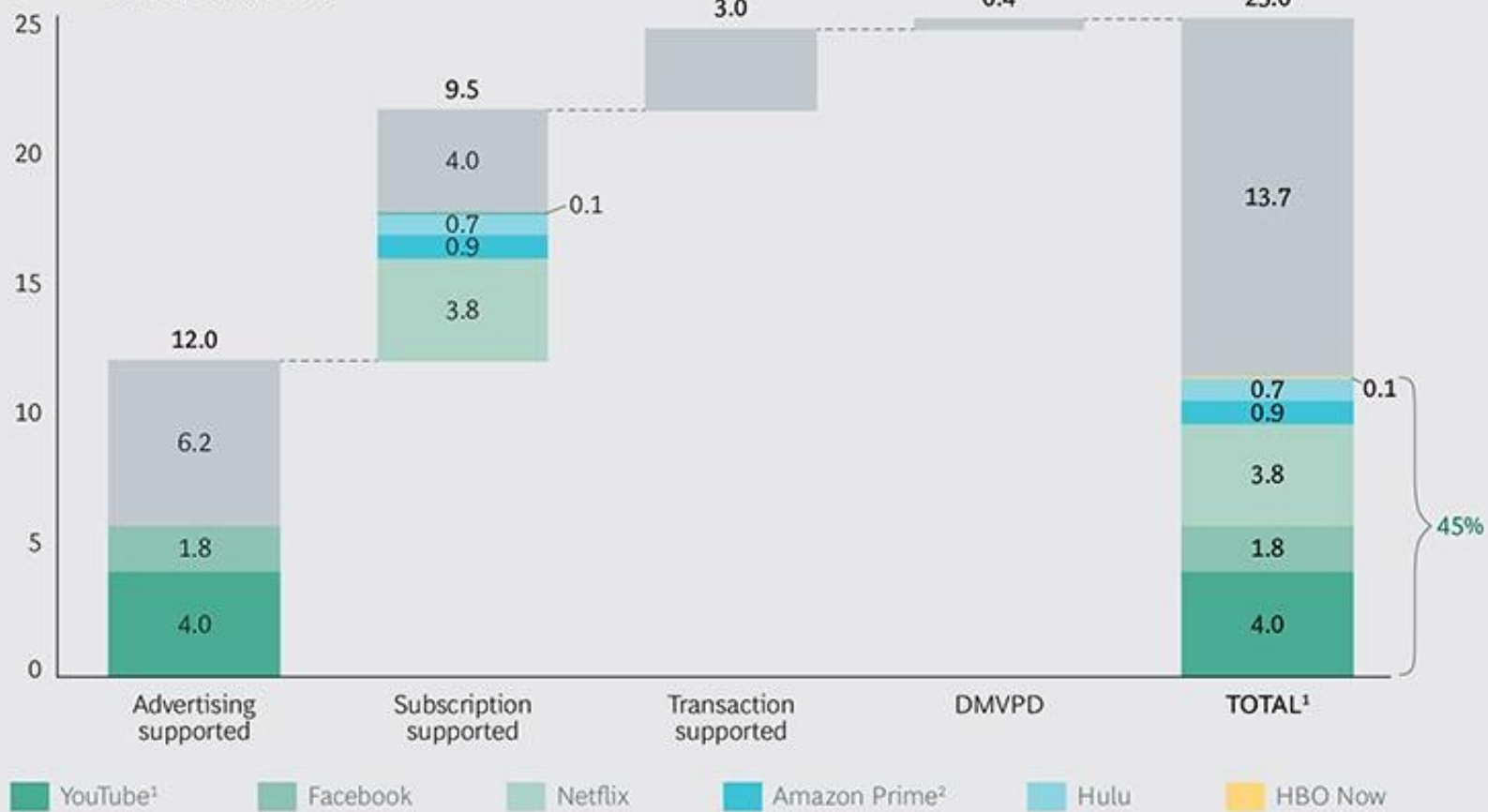


Sources: Nielsen; BCG analysis.

Note: OTT is untethered viewing on stationary and mobile devices; TV is traditional, facilities-based video tethered to the traditional infrastructure. Because of rounding, not all percentages add up to 100.

EXHIBIT 7 | Five Global Players Represent Nearly Half of OTT Revenues

OTT TV revenues, 2016 (\$billions)



Sources: Consumer Intelligence Research Partners; Evercore ISI; Netflix; Ovum; press reports; BCG analysis.

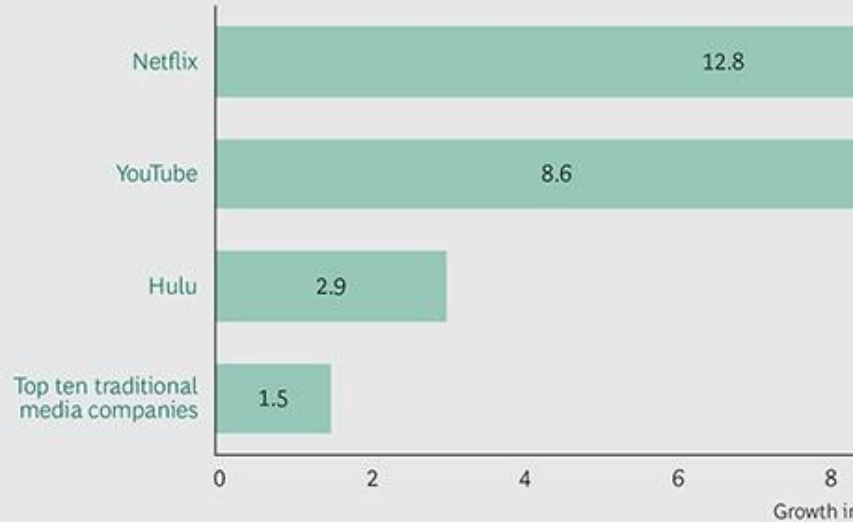
Note: DMVPD = digital multichannel video programming distributor. Advertising-supported global-player revenues are based on 2015 figures; subscription-supported global-player revenues are publicly released revenues multiplied by the share of total subscription-supported revenues that are from TV (57%, according to Ovum).

¹Calculated as \$9 billion in gross revenues minus \$5 billion in payments to content creators and rights holders.

²Calculated as Amazon Prime subscribers multiplied by the Prime Video price (\$8.99 per month) and the percentage of Prime members who subscribe primarily to video services (22%, according to Consumer Intelligence Research Partners).

EXHIBIT 8 | The Valuations of Top OTT Players Far Outpace Competitors in Traditional Media

VALUATION TRENDS OF LEADING OTT AND TRADITIONAL MEDIA PLAYERS, 2011–2015

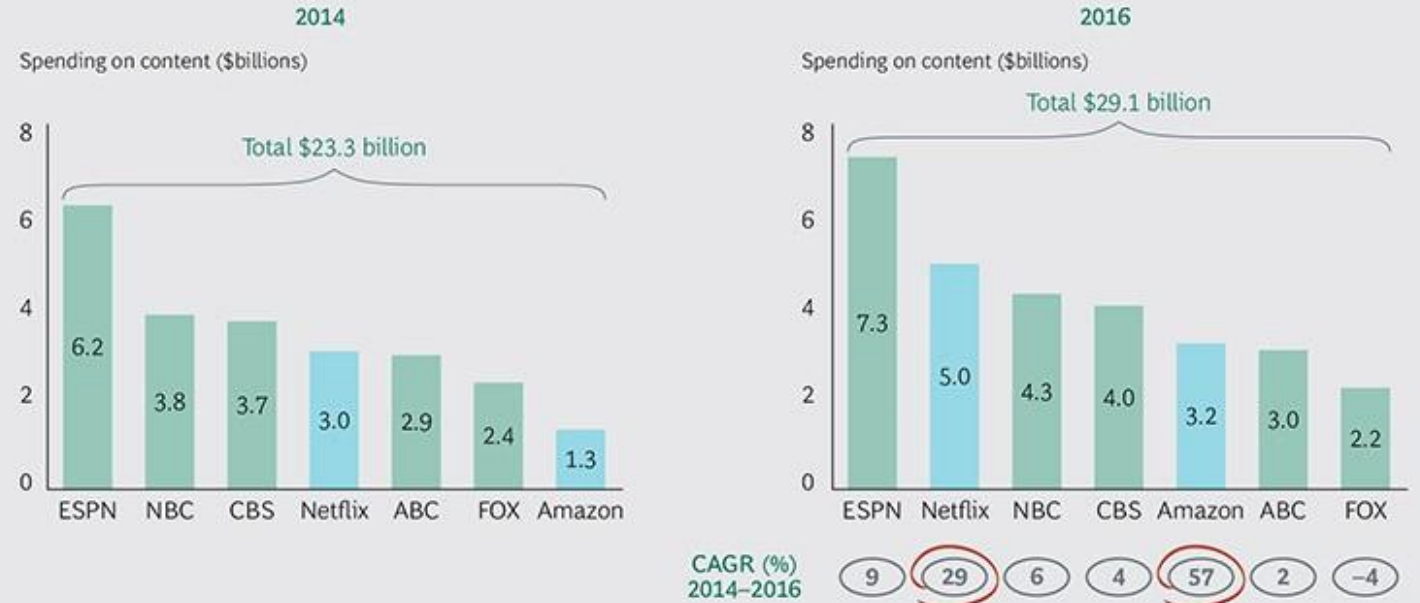


Sources: Forbes Global 2000; S&P Capital IQ; press reports; BCG analysis.

Note: The top ten traditional media companies are Comcast, Disney, 21st Century Fox, Time Warner, and the RTL Group. Based on the 2015 Forbes Global 2000 list; companies with no television assets are excluded; valuations of traditional media companies are based on market capitalization at fiscal year end. The Hulu figure is based on analyst estimates of \$10.5 billion in 2011 and \$90 billion in 2015. The Hulu figure is based on analyst estimates of \$6 billion in 2015.

EXHIBIT 12 | Ranked Among Cable Networks, Netflix and Amazon Would Be in the Top Five for Content Spending

THE TOP FIVE CABLE NETWORKS—PLUS NETFLIX AND AMAZON

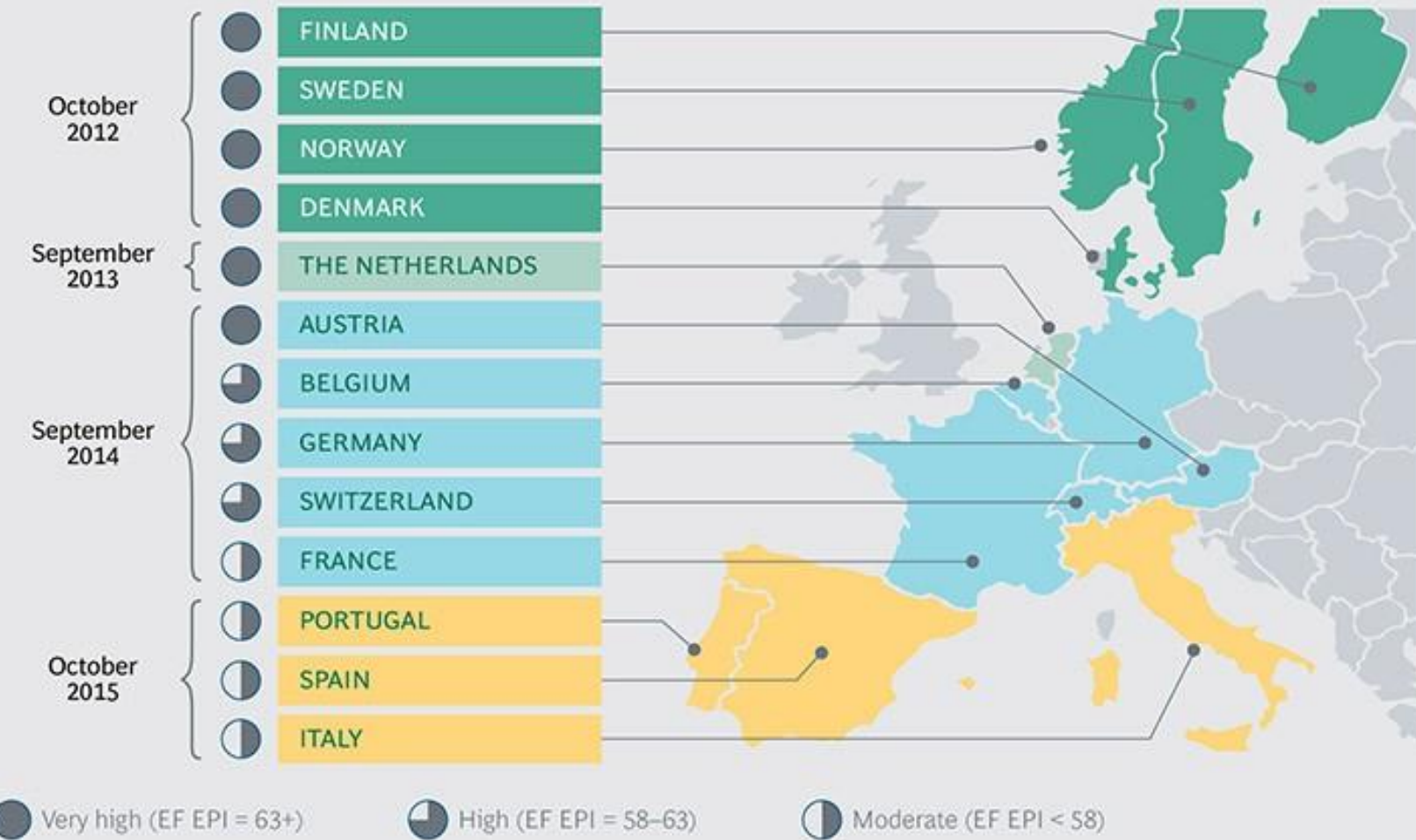


Sources: SNL Kagan; press reports; BCG analysis.

Note: Netflix and Amazon figures include both TV and film content expenditures. Because of rounding, not all numbers add up to the totals shown.

EXHIBIT 16 | Netflix Launches Are Clearly Linked to Each Market's English Proficiency

LAUNCH DATE



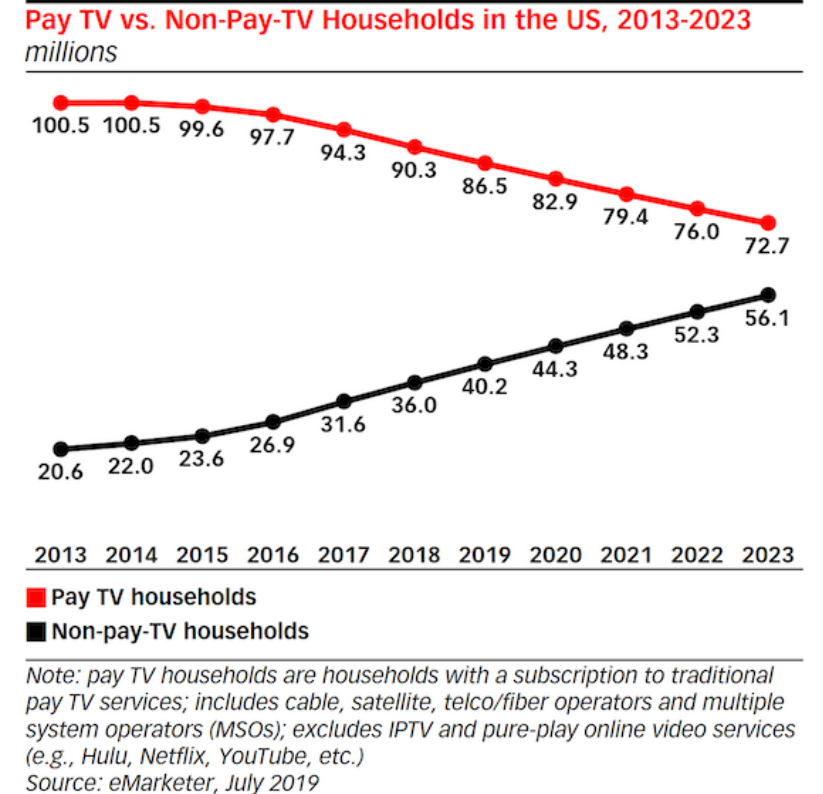
Sources: Education First English Proficiency Index; Macquarie Research.

Note: EF EPI = Education First English Proficiency Index score.

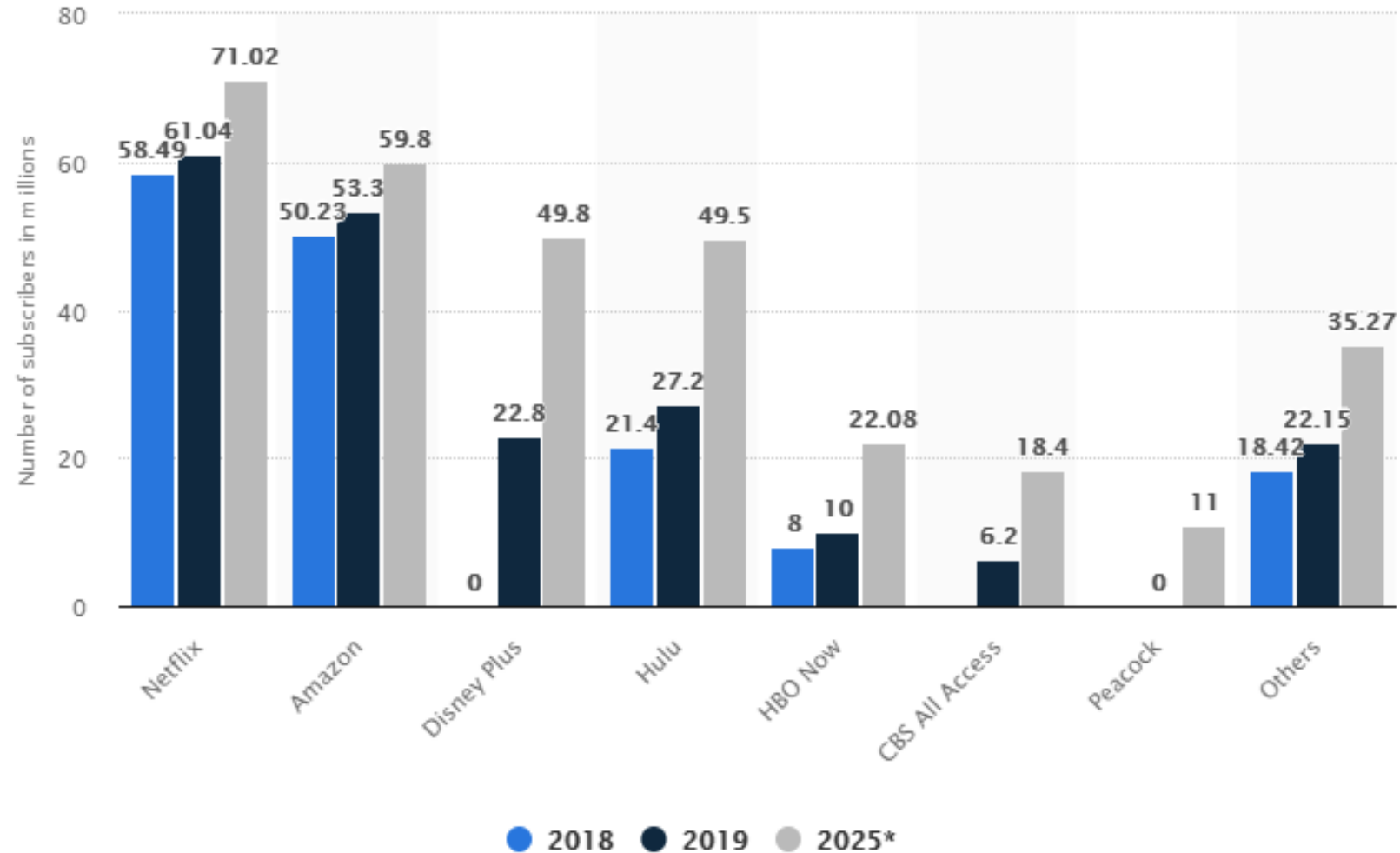
Television

The Digital Revolution Is Disrupting the TV Industry

- DISRUPTIVE IMPACT OF THE ONLINE-VIDEO VALUE CHAIN
 - Online and mobile viewing will exceed facilities-based video viewing
 - On-demand viewing will exceed live, linear viewing
 - New companies and business models are capturing value online
 - Networks are experiencing a collapse of the middle and a rise of the “long tail”
 - Content creators and rights holders are capturing a greater share of value



Number of subscribers to selected subscription video on demand (SVOD) services in the United States from 2018 to 2025, by provider (in millions)



Television

The Digital Revolution Is Disrupting the TV Industry

- WHERE IS THE INDUSTRY HEADED?
 - The universal remote: global, all-inclusive navigation solves the discovery problem
 - The walled garden: exclusive entertainment becomes the critical strategic asset
 - Distribution disintermediation: direct-to-consumer takes on traditional TV bundles
 - Live TV online: online players stream live water-cooler programming

Cord-Cutting

[What Is The Future Of Television?](#)

- Cord-cutting is accelerating. In 2017, 22.2 million U.S. adults cut the cord, "up +33% in this year alone".
- Cord-nevers also rose (+5.8%) to 34.4 million.

Television Resources

TV

- [The Messy, Confusing Future of TV? It's Here - The New York Times](#)
- [CEO of Turner: The future of television is happening now - Recode](#)
- [What Is The Future Of Television? 10/19/2017 - MediaPost](#)
- [The Future of Television: Where the US Industry Is Heading - BCG](#)
- [What's the Future of Television? | Yale Insights](#)
- [The Future of TV isn't apps | TechCrunch](#)
- [The future of TV | Liz Evans | TEDxUoN](#)

Cord-cutting Resources

- [Cord Cutters to Top 22 Million in U.S. by End of 2017 \(Study\) – Variety](#)
- [Smart TVs and Streaming Boxes Are Killing Cable Television | Time](#)
- [Why streaming TV choices are cutting away cable subscribers](#)
- [How Much Of An Effect Is Cord Cutting Having On Cable Companies?](#)
- [Cutting the cord - The future of television - The Economist](#)
- [The Ripple Effect of Cord Cutting on the Sports Landscape | Houston ...](#)
- [Comcast: Cord Cutting? What Cord Cutting? | Fortune](#)
- [The Unplugged Effect: How cord-cutting could become baseball's next ...](#)
- [Cord Cutting Impacts Cable TV Subscription Losses | The Cord Cutter ...](#)
- [The Netflix Effect: Fewer viewers are opting to sign up for cable in the ...](#)

Music

- 2016, for the first time ever, the majority of the music industry's revenue was generated by streaming services, but there are problems
 - SoundCloud axed 40% of its workforce and is running out of money
 - What about Apple Music and Spotify?
 - Spotify reported 140 million active users as of June 2017, w/ 50 million paid subscribers, Apple Music reported 27 million paid subscribers as of June
 - Both services provide 'try before you buy' subscription deals
 - Streaming subscriptions as a whole doubled last year, bringing in \$7.7 billion in revenue — an 11.4 percent gain from 2015
 - Still, revenue from 2016 was just half of what it was in 1999, accounting for the collapse of the CD market and the shift away from downloads ([source](#))

Blockchain's Future in the Music Industry

- This started with “The fear of missing out on BitCoin”
- Now [Dot Blockchain Media](#) wants to use (blockchain technology) to replace the industry’s old rights-holder databases with a music file format that contains rights information along with recordings
 - In theory, this would solve the problem of streaming services not being able to identify or find the rights owners for the songs they use
- Or not: [Despite Predictions, Blockchain Will Not Be The Future Of The Music Industry](#)
 - Consumers have adopted streaming, and many get their music for ‘free’ (or via a low-cost subscription) – why would they go back to paying more for less
 - Convenience is the magic word – people stream because it’s easier, blockchain doesn’t make music more ‘convenient’

Media

Music

- [The Future of the Music Industry | Articles | Digital | Innovation Enterprise](#)
- [Five visions of the future of music - BBC News](#)
- [The future of the music industry: blockchain, diversity, hologram Roy ...](#)
- [What is the Future of the Music Industry? | Big Think](#)
- [What's at Stake For the Future of Music Streaming - NBC News](#)
- [What Is Bitcoin, Blockchain's Future in the Music Industry? | Billboard](#)
- [Despite Predictions, Blockchain Will Not Be The Future Of The Music ...](#)

The Future of Entertainment and Technology | Lauren Schnipper



Movies

[The Future of Entertainment and Technology | Lauren Schnipper](#)

- There's a lot of content out there – where/what do you watch?
- 2004 – 9,000 stores, 60,000 employees, out of business by 2013
- Enter 'high-speed Internet'
 - Loss of DVD sales – '05 24.5 mil, '15 7.8 mil - 68% decline in 10 years
 - China and Russia – now 70% of total box office revenue – action movies
 - Top grossing movies in 2015 'mostly' sequels (2 of 10 are original)
 - Opportunity: affordable creation and distribution
 - Authenticity: audiences craving original story-telling (ex. [Broad City](#))
 - [Shane Dawson](#) – video creators and influencers
 - Future – new types of content and platforms to view content on

Media

Movies

- [10 Filmmaking Heavyweights Predict the Future of Cinema - Creators](#)
- [James Cameron on the Future of Cinema | Arts & Culture | Smithsonian](#)
- [Netflix, the Oscars, and the Battle for the Future of Film | Vanity Fair](#)
- [5 WTF Ways The Future Is About To Change Movies - Cracked.com](#)
- [Is Virtual Reality The Future of Film? - Newsweek](#)
- [Netflix is clashing with the Cannes Film Festival over the future of ...](#)
- [WSJ's Ben Fritz weighs in on the present and future of movies](#)
- [Our Streaming Future: How Home Viewing Is Evolving | PCMag.com](#)
- [From Netflix to full immersion: how the future of cinema lies in our ...](#)
- [View on Film: Looking into the future of home viewing | Movies and TV ...](#)
- [The Insanity of 'Unsane' Shows That iPhones Are the Future of Movies ...](#)
- [At Cannes, an existential fight over technology, Netflix and the future of ...](#)
- [What is the future of cinema? | YoExpert Q&A](#)

Media

Social Media

- [11 Ways Social Media Will Evolve in the Future - Entrepreneur](#)
- [The Future of Social Media: 32 Experts Share Their 2018 Predictions](#)
- [11 Predictions on the future of social media - CNBC.com](#)
- [The Past, Present and Future of Social Media - Brian Solis](#)
- [The Future of Social Media Is Here: These Are the Trends You Need to ...](#)
- [10 Predictions that will Change the Future of Social Networks in 2018 ...](#)
- [In the Future of Social Media, Will Every Platform Look the Same?](#)
- [3 Predictions On The Future of Social Media by Experts – Social ...](#)
- [The Future of Social Media Marketing Is Here: Trends to Look for ...](#)
- [How Facebook's Latest Changes Impact Influencers And The Future ...](#)
- [The Future of Social Media in Journalism - Mashable](#)
- [Twitter's latest moves prove video is the future of social media.](#)

Discussion

- Does this 'emerging' technology' have the potential to benefit everyone equally?
- What are its risks and rewards?
- Does it promote autonomy (self-determination) or dependence?