Cultural content in the online environment: Analyzing the value transfer in Europe
Forewords

This report was prepared with the support and upon the request of GESAC (European Grouping of Societies of Authors and Composers).

This report is based on publicly available figures and Roland Berger Analysis. In addition, 4 country-specific usage studies have been performed in France (Google usage study in February 2015 and Facebook usage study in March-April 2015) and in Italy (Google usage study in March 2015 and Facebook usage study in June 2015) which have been the basis for Search Engines and for Social Networks analysis.

This report is mostly an enhancement over usage studies aiming at assessing the share of Technical Intermediaries revenues directly generated by all usages (access, talk, e-commerce…) related to all Cultural Contents. A first estimate of the indirect impacts (i.e. related to the implicit effect such as stickiness and usage frequency) is also conducted in the report.

When public figures were not available (such as country-level revenue for most players), Roland Berger estimates have been used, based on publicly available figures (including population, households, share of connected population, advertising market data,…)
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EXECUTIVE SUMMARY

Cultural content in the online environment: Measuring the value transfer
This report aims at answering key questions regarding digital Technical Intermediaries and the "value generation gap" for cultural content

1 Context

> From the medium and device perspective, cultural content, which includes among others cinema, music, radio, photography, TV, press, live, books and video game content, is shifting from physical ownership to a cloud-based and flow-based usage
> Consumers have followed and adopted successive technology developments and are now connected almost continuously
> As a consequence, cultural content offer is now particularly abundant, opening the field to a heterogeneous scope of so-called digital intermediaries (Licensed Digital Distributors and Technical Intermediaries), and raising the issue of value creation from cultural content in the digital environment

2 Scope of the study

> Along with licensed digital distributors (OTT services, including generalists such as iTunes and specialists such as Netflix or Spotify), Technical Intermediaries cover a wide range of players and models, from Search engines and Social Networks to Content Aggregators and Cloud Services specialists
> This report objective is to answer key questions regarding Technical intermediaries at European level that may benefit from responsible for a "value generation gap" from cultural content
  > Among digital intermediaries, some categories should remain out of scope being covered by licensing agreements and compensation systems
  > Therefore, the report will focus especially on Technical intermediaries which generate value from cultural content without any compensation or without appropriate compensation to date
> Several OTT players have been selected as benchmarks for this study, with an analysis of their service offer types and business models: Netflix and Spotify
> Key output is to understand and assess overall value creation levers, being either in terms of revenue or other mechanisms
Context and scope of the study

Cultural content offer available through connected usages is now particularly abundant

Cultural content offer panel available from a connected device

Source: Press reviews, Roland Berger analysis
Hence, new Technical Intermediaries and Licensed Digital Distributors have entered the playground, impacting industry's value sharing.

Evolution of the value chain of cultural content exploitation

Past: Stored Usage
- Production (physical and digital)
- Publishing (physical and digital)
- Distribution (physical and digital)
- Outlet (physical or e-commerce)
- Storage and Copy

Present: Connected Usage
- Production of digital content
- Licensed Digital Distributors
- Distribution of digital content
- Outlet (physical or e-commerce)
- Storage and Copy

Technical Intermediaries
- Telcos
- IPTV Operators
- Media players on managed networks
- Search Engines
- Content aggregators
- Social Networks
- Cloud Services
- Private Cloud Devices and Services (incl. NPVR\textsuperscript{1} & backup)

Flow of digital content

Source: Roland Berger analysis

\textsuperscript{1} Network Private Video Recorder
Technical intermediaries as well as licensed content distributors cover a wide range of players and models.

Mapping of major intermediaries in the digital ecosystem

Source: Roland Berger analysis
Licensed digital content distributors are the reference channel for digital distribution - ~70% of gross revenue is spent on content

- Licensed digital content distributors are of importance as they tend to stand as the reference channel for content distribution, being for example for music (Spotify) or video (Netflix)
- Licensed digital content distributors include both pure online players (Spotify) and players that successfully achieved a digital transformation, as illustrated by Netflix which historical activity (DVD rentals) accounts for less than 15% of revenue as of today
- Cultural content is therefore both the basis and the core of their Business Model and is a key factor to retain customers – 100% of their value and revenue are based on distributed cultural content
- Players are now strongly challenged in the new environment, as illustrated by the current shake-up taking place between record companies, cultural content e-shops and rip-based content aggregators / content hosts (e.g. Grooveshark shutdown in may 2015)
- Value creation mechanism can differ from one player to other:

**A** Spotify – freemium model – Average royalty repayment of 70% of gross revenue
- 9% of revenue is generated by advertising to “free” users; those represent 2/3 of the customer base and have a negative average net revenue per user (ARPU, after royalties)
- 91% of revenue is generated by premium users fees; those represent 1/3 of the customer base and generate a net ARPU of ~42.7 EUR per year (after royalties)
- Overall, Spotify generates an average annual net revenue per user of 5.1 EUR (after royalties)¹

**B** Netflix – subscription-based model – Average content acquisition cost of 73% of gross revenue
- 100% of Netflix revenue is generated by subscriptions (DVD rental and video streaming)
- 86% of revenue is generated by video streaming, which is used by 89% of the customer base (gross ARPU of 62 EUR)
- Overall, the website generates an average annual net revenue per subscriber of 16.6 EUR per user

¹ This figure is based on blended approach of free and paid streams. It is to be noted that the business model mainly relies on the subscription model, which is more likely to be the proxy when comparing with the completely free streaming services undertaken by the “technical intermediaries” analysed in this report
Benchmarked pure online licensed digital content distribution players from music and video industries show comparable value sharing approaches with right holders

Benchmarks summary on online content streaming [2014]

<table>
<thead>
<tr>
<th>Audio</th>
<th>Video</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average royalty repayment [% of revenue]</strong></td>
<td><strong>Average content acquisition cost [% of revenue]</strong></td>
</tr>
<tr>
<td>70%</td>
<td>73%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Audio</th>
<th>Video</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Annual revenue per user(^1)</strong> (after royalties)</td>
<td><strong>Annual revenue per user(^1)</strong> (after royalties)</td>
</tr>
<tr>
<td>EUR 17</td>
<td>EUR 62</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Audio</th>
<th>Video</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Annual net revenue per user(^1)</strong> (after royalties)</td>
<td><strong>Annual net revenue per user(^1)</strong> (after royalties)</td>
</tr>
<tr>
<td>EUR 5.1</td>
<td>EUR 16.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Audio</th>
<th>Video</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Annual net revenue per premium user(^1)</strong> (after royalties)</td>
<td><strong>Annual net revenue per US streamer (after content costs)</strong></td>
</tr>
<tr>
<td>EUR 42.7</td>
<td>EUR 22.2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Audio</th>
<th>Video</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Annual net revenue per free user(^1)</strong> (after royalties)</td>
<td><strong>Annual net revenue per streamer (excl. US) (after content costs)</strong></td>
</tr>
<tr>
<td>EUR -7.4</td>
<td>EUR 4.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Audio</th>
<th>Video</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Royalties per digital listen</strong></td>
<td></td>
</tr>
</tbody>
</table>
The direct impact of cultural content on technical intermediaries revenue generation reaches 23% of their total revenue, to an amount of EUR 5.0 bn for Europe in 2014 (1/2)

Technical intermediaries create value thanks to cultural content in two ways:

> **Direct impact**, through *direct consumption or showcase* of (or monetized direct links to) cultural content (e.g. Google AdWords, in Facebook feed,…)

> **Implicit or collateral impact** (qualitative): in a fast-moving, technically complex, *oligopolistic and usage-driven competition*, market leaders derive increased future revenue generation capabilities, consumers knowledge and market valuation from those same *usages that are significantly driven by cultural content*

Source: Roland Berger analysis
The overall EU value gap yields from a bottom-up and segmented approach

Methodology

1. Analysis of the Value Chain and identification of key players per typology

2. Assessment for main players, of the share of revenue directly generated / due to cultural content

3. Extrapolation of the results to build the European picture
   - Extrapolate data either for an industry (e.g., music) or to a given typology of players (e.g., search engine)
   - Example: Google has 96% of market share (# users in EU, 2014), which easily provides a reliable picture of search engines

Source: Roland Berger analysis
Content direct contribution to revenue generation can be assessed as well as implicit contribution to value creation

Content direct impact on value creation

Approach for revenue generation: direct

Implicit value creation mechanisms

<table>
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<tr>
<th>Role of content</th>
<th>Is it a main lever in player X business model?</th>
<th>Role of content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct contribution to revenue generation</td>
<td>Market capitalization</td>
<td>Contribution to long term value creation</td>
</tr>
<tr>
<td></td>
<td>Market share</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Share of wallet</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brand image</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Better understanding of users and needs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Customer data monetization</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Machine learning</td>
<td></td>
</tr>
</tbody>
</table>

Source: Roland Berger analysis
The direct impact of cultural content on technical intermediaries revenue generation reaches 23% of their total revenue, to an amount of EUR 5.0 bn for Europe in 2014 (2/2)

Overall direct impact cultural content in revenue generation by Technical Intermediaries is very significant, and stands at EUR 5.0 bn for Europe in 2014, i.e. 23% of Technical Intermediaries revenue

> Most of the value creation relates to Search Engines, in part due to their very large market: for S.E. only, cultural content has a direct impact of EUR 3.0 bn on revenue (18% of the total), and for Google only, EUR 2.8 bn.

> Social Networks are the second largest beneficiaries of cultural content-driven revenue generation: direct impact is above EUR 1.3 bn (43%) due to the sheer quantity of embedded content, that drives advertising revenue

> Public platforms such as YouTube are highly reliant on cultural content, which have a direct impact on 66% of their revenue (EUR 0.48 bn); Aggregators are in a similar situation (75% direct impact, to EUR 75 m), while Lockers are impacted only to 3% of their revenue

> Such figures do not include the "hidden" impact of illegal usages, which are cannibalizing value worth billions of Euros

Source: Roland Berger analysis
Beyond revenues, all intermediaries benefit from the impact of cultural content on implicit and collateral value creation

Importance of cultural content in other mechanisms of value creation

<table>
<thead>
<tr>
<th>Importance of cultural content in implicit value creation</th>
<th>Rationale</th>
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<tbody>
<tr>
<td>Search engines</td>
<td>Low</td>
</tr>
<tr>
<td>Google</td>
<td>High</td>
</tr>
<tr>
<td>Content aggregators</td>
<td></td>
</tr>
<tr>
<td>TuneIn</td>
<td></td>
</tr>
<tr>
<td>Social Media</td>
<td></td>
</tr>
<tr>
<td>Facebook, Twitter</td>
<td></td>
</tr>
<tr>
<td>Public clouds and platforms</td>
<td></td>
</tr>
<tr>
<td>YouTube, Box, Dropbox</td>
<td></td>
</tr>
<tr>
<td>Google</td>
<td>The relevance and exhaustiveness of search results will impact the relative performance of players like Google, with direct consequences on market capitalization / share, brand image, or better understanding of users and needs.</td>
</tr>
<tr>
<td>TuneIn</td>
<td>Cultural content is at the heart of players business like TuneIn, with content range and quality impacting mostly the market share and brand image.</td>
</tr>
<tr>
<td>Facebook, Twitter</td>
<td>Cultural content has an impact on customer stickiness and therefore market capitalization, but it also impacts heavily the understanding of users and needs when the content is shared, liked or commented.</td>
</tr>
<tr>
<td>YouTube, Box, Dropbox</td>
<td>Public platforms benefit mostly but strongly from the collateral effect of direct value creation on sites embedding content from public cloud services.</td>
</tr>
</tbody>
</table>

Source: Roland Berger analysis
The direct European cultural content value differ from one intermediary typology to the other – overall several billions at stake

Overview of technical intermediaries – [Cultural content in Europe; EUR m ; %]¹)

<table>
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<tr>
<th>Typology and player example</th>
<th>Total Revenue</th>
<th>Direct impact of CC</th>
<th>Europe</th>
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</thead>
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<tr>
<td>Search engines</td>
<td>15 470</td>
<td>~2 835 (18%)</td>
<td>16 140</td>
</tr>
<tr>
<td>Content aggregators (music)</td>
<td>20</td>
<td>~15 (75%)</td>
<td>100</td>
</tr>
<tr>
<td>Social Media</td>
<td>2 450</td>
<td>~1040 (43%)</td>
<td>3 160</td>
</tr>
<tr>
<td>Lockers</td>
<td>100</td>
<td>~3 (3%)</td>
<td>1 740</td>
</tr>
<tr>
<td>Public video platforms</td>
<td>720</td>
<td>~475 (66%)</td>
<td>845</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>21 985</strong></td>
<td><strong>~4 980 (23%)</strong></td>
<td></td>
</tr>
</tbody>
</table>

¹) All figures rounded from most accurate calculation – hence offsets in sums of figures presented

Source: Roland Berger analysis
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Introduction

1 Context

> From the medium and device perspective, cultural content, which includes among others cinema, music, radio, photography, TV, press, live, books and video game content, is shifting from physical ownership to a cloud-based and flow-based usage.

> Consumers have followed and adopted successive technology developments and are now connected almost continuously.

> As a consequence, cultural content offer is now particularly abundant, opening the field to a heterogeneous scope of so-called digital intermediaries (Licensed Digital Distributors and Technical Intermediaries), and raising the issue of value creation from cultural content in the digital environment.

2 Scope of the study

> Along with licensed digital distributors (OTT services, including generalists such as iTunes and specialists such as Netflix or Spotify), Technical Intermediaries cover a wide range of players and models, from Search engines and Social Networks to Content Aggregators and Cloud Services specialists.

> This report objective is to answer key questions regarding Technical intermediaries at European level that may benefit from responsible for a "value generation gap" from cultural content.

  – Among digital intermediaries, some categories should remain out of scope being covered by licensing agreements and compensation systems.

  – Therefore, the report will focus especially on Technical intermediaries which generate value from cultural content without any compensation or without appropriate compensation to date.

> Several OTT players have been selected as benchmarks for this study, with an analysis of their service offer types and business models: Netflix and Spotify.

> Key output is to understand and assess overall value creation levers, being either in terms of revenue or other mechanisms.
Cultural content, including audiovisual, photography and press content, is shifting from physical ownership to a cloud and flow-based usage.

New usage shift

Stored Usage

- Analog Storage
- Mobile digital storage
- Fixed device
- Other devices

Connected Usage

Platform

- Cloud (public and private)
  - DEEZER
  - Amazon.com

Networks (Internet)

- Smartphone Digital Tablet
- Ereaders
- MP3 Player
- Laptop
- Desktop computer
- Connected TV
- Connected car

Connected Objects

- Personal Use
- Collective Use

Source: Roland Berger analysis
This trend can be seen in the continuous decline of music physical sales in favor of music downloads since ~10 years.

Global value of recorded music industry – [1997-2012]

In the end, the online subscription model will be much more remunerating for everyone

Guillaume Leblanc, Head of SNEP

“For the first time in 2014, revenue generated by online music streaming in the US was higher than CD revenue

Les Echos, May 2015


Source: Press, Spotify, Roland Berger analysis
The development of new technologies, notably cloud computing and mobile technologies, has enabled easier and faster data sharing.

New technologies evolution

**Mobile data average connection speed [kbps\(^1\); World]**

- Asia-Pacific
- Western Europe
- Central & Eastern Europe
- North America

**Cloud computing market [EUR bn; France]**

- +22% p.a.

1) Kilobit per second

Source: Markess 2013 barometer, CISCO, GFK, Roland Berger analysis
Connected usages are also driven by the increasing penetration of new connected devices – mainly laptops, smartphones and tablets.

**Context**

Connected devices and associated usages equipment rate

### Connected devices penetration rate

[Household penetration; Europe; 2012-2015]

<table>
<thead>
<tr>
<th>Year</th>
<th>Smartphones</th>
<th>Tablets</th>
<th>E-readers</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>69%</td>
<td>112%</td>
<td>10%</td>
</tr>
<tr>
<td>2013</td>
<td>86%</td>
<td>100%</td>
<td>16%</td>
</tr>
<tr>
<td>2014</td>
<td>100%</td>
<td>22%</td>
<td>2%</td>
</tr>
<tr>
<td>2015E</td>
<td>+21%</td>
<td>+165%</td>
<td>+132%</td>
</tr>
</tbody>
</table>

### Speed of penetration – Number of days to reach 1M units sold [World]

- **iPod**: 400 days
- **Blackberry**: 300 days
- **Netbooks**: 180 days
- **iPhone**: 75 days
- **iPad**: 30 days
- **iPad Mini**: 2 days
- **Google Glass**: ?

Source: Yankee Group Global Consumer Forecast, press release, Roland Berger analysis
Manufacturers are both pushing and following these trends through evolving specs (memory, bandwidth)

Importance of network speed for connected devices

iPhone evolution example (storage and connectivity capacity)

Mobile data consumption evolution in Western Europe [2012-17 ; '000 To/month]

1) HSPA : High Speed Packet Access (3G+); 2) DC-HSPA : Dual Carrier High Speed Packet Access (3G++); 3) LTE : Long Term Evolution (4G)

Source: Cisco, Apple, Roland Berger analysis
Consumers have followed these successive developments and are now connected almost continuously

Typical distribution of page views per connected device during the day – [# of page views]

Source: Markess 2013 barometer, CISCO, GFK, Roland Berger analysis
Over 3/4 of the European Union population is using the Internet as of today – Expected to reach 90% by 2020

Internet penetration in Europe [%; Dec. 2013]

Source: Internet World Stats, European Union Internet Statistics, Roland Berger analysis
Consumers tend to visit mostly content-rich or content-linked websites (vs. commerce sites)

Top 10 European websites [m visitors; 2012]

<table>
<thead>
<tr>
<th>Website</th>
<th>Average Daily Visitors</th>
<th>Monthly Unique Visitors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Google websites</td>
<td>375</td>
<td>165</td>
</tr>
<tr>
<td>Facebook.com</td>
<td>276</td>
<td>98</td>
</tr>
<tr>
<td>Microsoft websites</td>
<td>263</td>
<td>56</td>
</tr>
<tr>
<td>Wikimedia fondation websites</td>
<td>184</td>
<td>22</td>
</tr>
<tr>
<td>Yahoo! sites</td>
<td>146</td>
<td>27</td>
</tr>
<tr>
<td>Amazon websites</td>
<td>124</td>
<td>16</td>
</tr>
<tr>
<td>eBay</td>
<td>118</td>
<td>18</td>
</tr>
<tr>
<td>VEVO</td>
<td>90</td>
<td>10</td>
</tr>
<tr>
<td>Apple Inc.</td>
<td>88</td>
<td>11</td>
</tr>
<tr>
<td>Axel Springer</td>
<td>88</td>
<td>12</td>
</tr>
</tbody>
</table>

1) Incl. YouTube  
2) Joint venture of Universal, Sony and YouTube among others – Music videos from major record labels displayed on Vevo website and YouTube  
3) Traffic boosted by Microsoft software "Help and How-to" web pages

Source: ComScore, Roland Berger analysis
As an example, consumers online video usage grew by 45% on average in Europe between 2012 and 2013.

Online video consumption growth in Europe\(^1\) [\(\text{m UV; 2012-2013 YoY}\)]

<table>
<thead>
<tr>
<th>Country</th>
<th>Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>70%</td>
</tr>
<tr>
<td>Italy</td>
<td>46%</td>
</tr>
<tr>
<td>Europe</td>
<td>45%</td>
</tr>
<tr>
<td>France</td>
<td>32%</td>
</tr>
<tr>
<td>Austria</td>
<td>29%</td>
</tr>
<tr>
<td>Germany</td>
<td>27%</td>
</tr>
<tr>
<td>Netherlands</td>
<td>24%</td>
</tr>
<tr>
<td>Spain</td>
<td>4%</td>
</tr>
</tbody>
</table>

73% of European Internet users watch TV online.

\(^1\) Selection of countries

Source: IAB Europe, Roland Berger analysis
Although Google (YouTube) dominates, videos are more and more watched online on specialized platforms and on social networks.

Online video consumption per player – Illustration

### Video sites in France [2012]

<table>
<thead>
<tr>
<th></th>
<th>Videos per viewer</th>
<th>Minutes per viewer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Others</td>
<td>196</td>
<td>1,094</td>
</tr>
<tr>
<td>Dailymotion.com</td>
<td>11%</td>
<td>7%</td>
</tr>
<tr>
<td>VEVO 2)</td>
<td>5%</td>
<td>3%</td>
</tr>
<tr>
<td>Google websites 1)</td>
<td>35%</td>
<td>38%</td>
</tr>
</tbody>
</table>

### Video sites in Germany [2012]

<table>
<thead>
<tr>
<th></th>
<th>Videos per viewer</th>
<th>Minutes per viewer</th>
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<tbody>
<tr>
<td>Others</td>
<td>182</td>
<td>1,299</td>
</tr>
<tr>
<td>Facebook.com</td>
<td>37%</td>
<td>62%</td>
</tr>
<tr>
<td>ProSiebenSat1 sites</td>
<td>4%</td>
<td>5%</td>
</tr>
<tr>
<td>VEVO 2)</td>
<td>5%</td>
<td>3%</td>
</tr>
<tr>
<td>Google websites 1)</td>
<td>54%</td>
<td>35%</td>
</tr>
</tbody>
</table>

### Evolution of minutes per viewer per platform in the US

<table>
<thead>
<tr>
<th></th>
<th>Nov-12</th>
<th>Dec 2013</th>
<th>March 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Others</td>
<td>1,238</td>
<td>1,165</td>
<td>1,067</td>
</tr>
<tr>
<td>Facebook</td>
<td>38%</td>
<td>45%</td>
<td>42%</td>
</tr>
<tr>
<td>VEVO 2)</td>
<td>45%</td>
<td>45%</td>
<td>45%</td>
</tr>
<tr>
<td>NDN 3)</td>
<td>4%</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>AOL</td>
<td>5%</td>
<td>7%</td>
<td>5%</td>
</tr>
<tr>
<td>Yahoo! sites</td>
<td>6%</td>
<td>6%</td>
<td>6%</td>
</tr>
<tr>
<td>Google websites 1)</td>
<td>39%</td>
<td>31%</td>
<td>28%</td>
</tr>
</tbody>
</table>

1) Incl. YouTube 2) Joint venture of Universal, Sony and YouTube among others – Music videos from major record labels displayed on Vevo website and YouTube 3) Video news syndicator

Source: ComScore, Roland Berger analysis

Similar trend of Facebook expected in Europe?
European users spend 25% to 30% of their time online on Social media

Time spent on the internet by internet users [av. # of hours / day; Feb. 2014]

<table>
<thead>
<tr>
<th></th>
<th>Access through laptop/desktop</th>
<th>Access through mobile device</th>
<th>Time spent on social media [av. h/day]</th>
<th>% of time spent online</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russia</td>
<td>6.2</td>
<td>23%</td>
<td>1.9</td>
<td>30.6%</td>
</tr>
<tr>
<td>Italy</td>
<td>6.9</td>
<td>32%</td>
<td>2.0</td>
<td>29.0%</td>
</tr>
<tr>
<td>Sweden</td>
<td>5.6</td>
<td>77%</td>
<td>1.4</td>
<td>25.0%</td>
</tr>
<tr>
<td>France</td>
<td>5.5</td>
<td>75%</td>
<td>1.7</td>
<td>25.0%</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>5.7</td>
<td>25%</td>
<td>1.6</td>
<td>29.0%</td>
</tr>
<tr>
<td>Spain</td>
<td>5.8</td>
<td>75%</td>
<td>1.5</td>
<td>28.1%</td>
</tr>
<tr>
<td>Germany</td>
<td>5.3</td>
<td>25%</td>
<td>1.3</td>
<td>24.5%</td>
</tr>
<tr>
<td>Netherlands</td>
<td>5.1</td>
<td>27%</td>
<td>1.3</td>
<td>25.5%</td>
</tr>
</tbody>
</table>

Zoom on social media sites

40% of European users are using a social media (vs. 26% globally), 26% on mobile devices

Source: WeAreSocial.sg, Roland Berger analysis
As a consequence, cultural content offer available through connected usages is now particularly abundant

Cultural content offer panel available from a connected device
Beyond Social Media or Video, customers have massively embraced new consumption, communication and interaction patterns

The Internet in Real Time – What happens during 200 seconds - 2015

Source: Digital Synopsis, Roland Berger analysis
Along with content proliferation, the value chain has been disrupted, especially regarding distribution and storage

**Cultural content value chain evolution**

### Before

- **Production**
- **Publishing**
- **Distribution & sales**
- **Storage and Copy**

**Distribution:**
- Mostly physical outlets, physical copies, or
- Broadcasted content (content in continuous flow, 1-to-many)
- High level of control of distributed content by right holders (count, coverage, …)

**Storage and copy:**
- CD
- VCR tapes
- DVD
- Hard disks
- USB drivers, …
- Relative visibility on usages
- Limited copying and sharing capabilities
- Relative visibility on copy

### Now

- **Production and publishing of digital content**
- **Licensed Digital Distributors**
- **Technical Intermediaries**
- **Telecom Operators**
- **PC & connected objects**
- **Download & Streaming**

**Distribution:**
- Content aggregators
- On-demand content from new distributors
- Illegal websites
- …
- Mostly immaterial distribution
- Limited control of distributed and shared content
  - Diffuse content distribution
  - IP (1 to 1) content sharing

**Storage and copy:**
- Cloudification of content storage
- Easy storage, copy and sharing
- No visibility on content usage
- No visibility on volume and type of content stored

Source: Roland Berger analysis

---

### Context

1. **Production and publishing of digital content**
2. **Licensed Digital Distributors**
3. **Technical Intermediaries**
4. **Telecom Operators**
5. **PC & connected objects**
6. **Download & Streaming**
Hence, new Technical Intermediaries and Licensed Digital Distributors have entered the playground, impacting industry's value sharing.

Evolution of the value chain of cultural content exploitation

Past: Stored Usage

<table>
<thead>
<tr>
<th>Production (physical and digital)</th>
<th>Publishing (physical and digital)</th>
<th>Distribution (physical and digital)</th>
<th>Outlet (physical or e-commerce)</th>
<th>Storage and Copy</th>
</tr>
</thead>
</table>

Present: Connected Usage

<table>
<thead>
<tr>
<th>Production of digital content</th>
<th>Technical Intermediaries</th>
<th>Licensed Digital Distributors</th>
</tr>
</thead>
<tbody>
<tr>
<td>OTT services</td>
<td>Media players on managed networks</td>
<td>Content aggregators</td>
</tr>
<tr>
<td>Search Engines</td>
<td>Social Networks</td>
<td>Cloud Services</td>
</tr>
<tr>
<td>Private Cloud Devices and Services (incl. NPVR &amp; backup)</td>
<td>Private Cloud Devices and Services (incl. NPVR &amp; backup)</td>
<td>Private Cloud Devices and Services (incl. NPVR &amp; backup)</td>
</tr>
</tbody>
</table>

Flow of digital content

Storage and Sharing

1) Network Private Video Recorder

Source: Roland Berger analysis
Main players may benefit from very high valuations, sometime despite lack of revenue, due to oligopolistic situations

Largest players – Revenue and Enterprise value

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Google</td>
<td>66.0</td>
<td>308.3</td>
</tr>
<tr>
<td>Faceook</td>
<td>12.5</td>
<td>213.8</td>
</tr>
<tr>
<td>Netflix</td>
<td>5.5</td>
<td>37.1</td>
</tr>
<tr>
<td>Twitter</td>
<td>1.4</td>
<td>22.4</td>
</tr>
<tr>
<td>Spotify</td>
<td>1.2</td>
<td>8.0</td>
</tr>
<tr>
<td>Dropbox(^4)</td>
<td>0.4</td>
<td>10.0</td>
</tr>
<tr>
<td>Box</td>
<td>0.2</td>
<td>1.7</td>
</tr>
<tr>
<td>Dailymotion</td>
<td>0.1</td>
<td>0.3</td>
</tr>
<tr>
<td>Shazam(^7)</td>
<td>0.0</td>
<td>1.0</td>
</tr>
<tr>
<td>8 Tracks(^9)</td>
<td>0.0</td>
<td>0.1</td>
</tr>
</tbody>
</table>

1) Company valuation or Market Capitalization minus Cash
2) Otherwise stated
3) USD 350 m allegedly raised in May 2015 valuing Spotify at USD 8 bn (CNBC)
4) Analyst estimates
5) USD 250 m raised in January 2014 valuing Dropbox at USD 10 bn
6) Vivendi rumored to acquire 80% stake for EUR 17 m implying EUR 265 m valuation
7) 2013
8) USD 30 m raised in January 2015 valuing Shazam at USD 1 bn
9) Estimate

Source: Infinancials, press, Roland Berger analysis
Technical intermediaries as well as licensed content distributors cover a wide range of players and models

Mapping of major intermediaries in the digital ecosystem
### Categories in the value chain of cultural content exploitation – Glossary

<table>
<thead>
<tr>
<th>Licensed content distributors</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; OTT services</td>
<td>&gt; Digital content rental/purchase services operated by OTT players (streamed or downloaded)</td>
</tr>
<tr>
<td>&gt; Managed networks</td>
<td>&gt; Digital video content rental/purchase services operated by TV groups and networks (TV VoD platforms) (streaming-based)</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Search Engines</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Content aggregators</strong></td>
<td></td>
</tr>
<tr>
<td>&gt; Publisher-based content interface</td>
<td>&gt; Indexing and streaming service of publication-based content interface for online content (radio networks, radio stations, TV, …)</td>
</tr>
<tr>
<td>&gt; Redirection platforms</td>
<td>&gt; Indexing service of video/audio content from public cloud platforms and services</td>
</tr>
<tr>
<td>&gt; P2P portals and Redirection platforms</td>
<td>&gt; Indexation services of peer to peer content sharing (each peer is both user and host) and indexing service of video/audio content,</td>
</tr>
<tr>
<td><strong>Social Networks</strong></td>
<td></td>
</tr>
<tr>
<td>&gt; Internet-based interactive applications allowing users to create, share or exchange all types of content (incl. UGC(^1) as well as cultural content)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cloud Services</strong></td>
<td></td>
</tr>
<tr>
<td>&gt; Lockers</td>
<td>&gt; Hosting services allowing users to upload personal content to a cloud so that it may be accessed or shared from multiple devices</td>
</tr>
<tr>
<td>&gt; Public video/audio platforms</td>
<td>&gt; Online content distribution services based on content posted by owners (online/streaming based)</td>
</tr>
<tr>
<td>&gt; Rip-based public video/audio platforms</td>
<td>&gt; Online content distribution services based on content mostly ripped from other sources</td>
</tr>
<tr>
<td><strong>Private Cloud</strong></td>
<td></td>
</tr>
<tr>
<td>&gt; Cloud player services</td>
<td>&gt; Personal cloud-based music storage and streaming services available for personal or shared usage</td>
</tr>
<tr>
<td>&gt; nPVR (nDVR, RS-DVR)</td>
<td>&gt; TV content recording services accessible from multiple devices, stored on operators servers (nPVR) or on a NAS provided by the operators (NAS based DVR)</td>
</tr>
<tr>
<td>&gt; Devices / Backup based</td>
<td>&gt; File computer data storage server connected to a computer network (NAS) / online NAS back-up services</td>
</tr>
</tbody>
</table>

---

1) User Generated Content

Source: Roland Berger analysis
The study will therefore focus on Technical Intermediaries which do not contribute to compensation mechanisms to date.

Evolution of the value chain of cultural content exploitation – Examples of players

Past: Stored Usage
- Production (physical and digital)
- Publishing (physical and digital)
- Distribution (physical and digital)
- Outlet (physical or e-commerce)
- Storage and Copy

Present: Connected Usage
- Licensed Digital Distributors
  - OTT services
  - Media players on managed networks
  - Search Engines
  - Content aggregators
  - Social Networks
  - Cloud Services
  - Private Cloud Devices and Services (incl. NPVR\(^1\) & backup)

Flow of digital content
- Storage and Sharing

Source: Roland Berger analysis

1) Network Private Video Recorder
OTT players compete with traditional content distributors and managed networks with an IP-based on-demand content offer to their customers.

Licensed Digital Content Distributors: OTT services

1 Who are they?

> Digital content rental/purchase services operated by OTT players (streamed or downloaded)

> Subscription-based > On-demand services

> Spotify has raised USD 538 m since creation and paid ~USD 2 bn in royalties over 2011-2014

> Netflix content costs amounted to USD 2,776 m in 2014

> OTT players generate revenue through a freemium model combining:
  – a subscription-based paying offer
  – an advertising-based free offer

> Hence, revenue is mainly driven by:
  – # of users and usage levels
  – available inventory and valuation of inventory

> Range of content availability and uniqueness directly impact customer perception on the offer and their willingness to consume more content

2 What kind of relationship with other players?

<table>
<thead>
<tr>
<th>Agreements with beneficiaries?</th>
<th>Inclusion in scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>☒ 1)</td>
</tr>
</tbody>
</table>

> Display cultural content in the frame of agreement with right holders

> Main legal rental/purchase services for cultural content, streamed or downloaded to the customer’s device, in the frame of an agreement with the right holders

> Positioned as the reference legal channel for online cultural content distribution and therefore represent a relevant benchmark point

3 How do they generate revenue?

1) For benchmark purpose only

Source: Netflix, Spotify, press, Roland Berger analysis

4 Why are they important?

Details in the study
OTT players provide Apps and websites for direct content consumption

Licensed Digital Content Distributors: OTT services

**Spotify**

- Possibility to share a link on social media, redirecting to Spotify

**Netflix**

- Redirection to Netflix exiting from redirection platforms (ex: Can I Stream It)

Source: Netflix, Spotify, Roland Berger analysis
Search engines are driving most of their search revenue from sponsored links and benefit from indexing cultural content at marginal cost

Technical intermediaries – Search engines

1 Who are they?

> Cloud-based solutions designed to search on the internet through indexing of all sources and redirecting users

> Google has a ~96% market share in Europe with ~EUR 15.5 bn in revenue (Google Search)

> Search engines mainly generate revenue through sponsored links

> Hence, revenue is mainly driven by available inventory and valuation of inventory

> Key success factors for revenue generation include:
  – Relevance and thoroughness
  – Customer stickiness and customer targeting
  – Ubiquity for advertisers

2 What kind of relationships with other players?

Agreements with right holders? | Inclusion in scope?
---|---
✓ | x

> May benefit from indexing cultural content (traffic, exhaustiveness, …) at marginal cost

> Directing towards cultural content published:
  – by right-holders (e.g. blogs)
  – on cloud platforms (e.g. YouTube)
  – elsewhere (e.g. Facebook, but also illegal platforms)

> Internet navigation main tool

> Frequent entry point to any destination on the web

3 How do they generate revenue?

4 Why are they important?

1) Google European fund for press: in April 2015 Google has pledged to give EUR 150 m to European news publishers and journalism-focused start-ups over the next three years

Source: Google, press, Roland Berger analysis

Detailed analysis in the study
Search engines are driving most of their search revenue from sponsored links and display advertising but do not host content.

Technical intermediaries – Search engines

Google Search

Yahoo!

> Revenue model is primarily based on:
  – **Sponsored links**
  – Display advertising
> No, or very limited (snippets, thumbnails) "on-site" content, but linking to almost all available content

Source: Google, Yahoo!, Roland Berger analysis
Publisher-based content aggregators offer indexing and streaming of cultural content without paying compensation to right holders

Technical intermediaries – Content aggregators – Publisher-based content interface

1 Who are they?

> Indexing and streaming service of publication-based content interface online (radio networks, radio stations, TV, …)

> With over 100,000 real radio stations and 4 million on-demand programs and podcasts available in ~230 countries, Tunein has become the leading radio hub for customers

> Publisher-based content interfaces typically generate revenue through display ads and commissions (potentially paying apps)

> Hence, revenue is mainly driven by available inventory and valuation of inventory

> Key success factors for revenue generation include:
  – Breadth of content range
  – Ads format and fill rate
  – Usage quality and customer stickiness

2 What kind of relationships with other players?

Agreements with right holders?

Inclusion in scope?

> Benefit from cultural content hosted on legal platforms without paying any compensation to right holders

> Websites revenue model directly linked to cultural content distribution: indexation of musical and video content from hosting websites or editors website

Become very substantial content and traffic hubs in place of traditional content editors (eg. radio)

3 How do they generate revenue?

Source: Tunein, press, Roland Berger analysis

4 Why are they important?

Detailed analysis in the study
Redirection platforms index video and audio content hosted on public cloud platforms

Technical intermediaries – Content aggregators – Redirection platforms

1 Who are they?
> Indexing service of video/audio content from public cloud services with commitment to enter a relationship with right owners

2 What kind of relationships with other players?

Agreements with right holders? Inclusion in scope?

> Benefit from cultural content hosted on legal platforms without paying compensation to right holders

3 How do they generate revenue?
> Redirection platforms typically generate revenue through display ads and commissions
> Hence, revenue is mainly driven by available inventory and valuation of inventory
> Key success factors for revenue generation include:
  – Breadth of content range
  – Ads format and fill rate
  – Usage quality and customer stickiness

4 Why are they important?
> Websites revenue model directly linked to cultural content distribution: indexation of musical and video content from hosting websites or editors website
> Could become crucial intermediary players centralizing much user traffic thanks to the richness and diversity of the content they have aggregated on their platforms

Source: Press, Roland Berger analysis
P2P portals and redirection platforms index mostly ripped cultural content with no compensation to right holders

Technical intermediaries – Content aggregators – P2P & Redirection platforms

1 Who are they?

> Indexation services of peer-to-peer content sharing (each peer is both user and host) and indexing service of video/audio content with no commitment to enter a relationship with right owners

> In 2014, P2P portals and redirection platforms generated ~EUR 23 m in revenue with an operating margin of ~85% in 2013

> Publisher-based content interfaces typically generate revenue through display ads, sponsored links and specific actions

> Hence, revenue is mainly driven by available inventory and valuation of inventory

> Key success factors for revenue generation include:
  - Breadth of content range
  - Ads format and fill rate
  - Usage quality and customer stickiness

3 How do they generate revenue?

4 Why are they important?

Detailed analysis in the study: Due to the very large number of players with numerous specificities, this category was considered as a whole when analyzing its revenue model

Source: Press, Digital Citizens Piracy report, Roland Berger analysis
Content aggregators – Publisher-based, redirection platforms or P2P portals – mostly generate revenue through advertising and commissions.

Technical intermediaries – Content aggregators – Redirection platforms

<table>
<thead>
<tr>
<th>Published-based content interface</th>
<th>Redirection platform</th>
<th>P2P Portal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tunein</td>
<td>8 Tracks</td>
<td>Pirate Bay</td>
</tr>
</tbody>
</table>

> Revenue model is primarily based on:
  - Display advertising
  - Commissions

Source: Tunein, 8 Tracks, Pirate Bay, Roland Berger analysis
Social networks as well generate most of their revenue from advertising and sponsored links, benefiting from shared cultural content.

Technical intermediaries – Social networks

1. Who are they?

> Internet-based interactive applications enabling users to create, share or exchange all types of content (incl. UGC\textsuperscript{1}) as well as cultural content.

> Social networks typically generate revenue through native advertising, display ads and sponsored links.

> Revenue is mainly driven by available inventory and valuation of inventory.

> Key success factors for revenue generation include:

- Virality (Tribe effect) and customer stickiness
- Customer targeting, ubiquity for advertisers, ads format and fill rate

2. What kind of relationships with other players?

<table>
<thead>
<tr>
<th>Agreements with right holders?</th>
<th>Inclusion in scope?</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>✓ \textsuperscript{2)}</td>
</tr>
</tbody>
</table>

> May benefit from casting cultural content shared by users often at no cost.

> By gathering all types of user-generated content as well as embedded content from public-cloud companies, social networks have proved to be moving constantly at the centre of most customers’ online usage.

> The potential for growth remains important as more and more players consider social networks as efficient media to reach the largest audience.

3. How do they generate revenue?

4. Why are they important?

1) User Generated Content 2) Professional networks out of scope since their revenue is not directly linked to cultural content

Source: Facebook, press, Roland Berger analysis

---

1) User Generated Content 2) Professional networks out of scope since their revenue is not directly linked to cultural content

---

1) User Generated Content 2) Professional networks out of scope since their revenue is not directly linked to cultural content

---

1) User Generated Content 2) Professional networks out of scope since their revenue is not directly linked to cultural content
Social networks generate most of their revenue from display and native advertising; content may be hosted or played on-site

Technical intermediaries – Social networks

Facebook

- Revenue model is primarily based on advertising:
  - Native
  - Display
  - On-site / "in-app" player for some content

Facebook

Twitter

- Revenue model is primarily based on advertising related to:
  - Promoted tweets
  - Promoted accounts
  - Promoted trends

> Content may be played on a private browser

Source: Facebook, Twitter, Roland Berger analysis
Distant lockers usage has recently soared thanks to internet / IT giants' cloud services development

Technical intermediaries – Cloud Services – Lockers

1. Who are they?
   - Personal lockers
     – Hosting services allowing users to upload personal content to a cloud so that it may be accessed or shared from multiple devices
   - On average, 10% of Box customers pay a subscription
   - Cultural content accounts for less than 5% of Box premium storage
   - Personal lockers typically generate revenue through a freemium model combining a subscription-based paying offer depending on storage capacity level and a free offer
   - Revenue is mainly driven by #users and usage levels
   - Key success factors for revenue generation include:
     – Usage quality
     – Large size content storage/sharing need
     – Price competitiveness

2. What kind of relationships with other players?
   - Agreements with right holders?
     - No
   - Inclusion in scope?
     - Yes
   - May benefit from cultural content stored and shared online by their subscribers
   - Various storage capacity allowing the user to store any media content (personal and public content) regardless of content type
   - By making content available from any device, enhance accumulation on the cloud of cultural content at no cost

3. How do they generate revenue?

4. Why are they important?

Source: Box, Press, Roland Berger analysis

Detailed analysis in the study
Lockers rely on a freemium model based on desired storage capacity; they are pure storage services, without embedded players.

Technical intermediaries – Cloud Services – Lockers

> Revenue model is primarily based on a freemium model and **subscriptions**
  - Premium users who want to extend their online storage capacity

Source: Box, iCloud, Roland Berger analysis
Public Video/Audio Platforms give streamed access – mostly free, ads paid – to either UGC or cultural content to their customers

Technical intermediaries – Cloud Services – Public video/ audio platforms

1 Who are they?

> Online content distribution services based on content created by users and copyrighted content (online/streaming based)

> YouTube reported ~1bn users in 2014 and has paid over USD 1bn to right holders since 2007

> Both YouTube and Soundcloud display ~20% of cultural content (i.e. non pure-UGC)

> Public video/audio platforms typically generate revenue through display advertising

> Revenue is mainly driven by available inventory and valuation of inventory

> Key success factors for revenue generation include:
  – # free users (audience)
  – Content range thoroughness and quality
  – Customer targeting, ubiquity for advertisers and ads relevance
  – Usage quality

2 What kind of relationships with other players?

<table>
<thead>
<tr>
<th>Agreements with right holders?</th>
<th>Inclusion in scope?</th>
</tr>
</thead>
<tbody>
<tr>
<td>✗</td>
<td>✓</td>
</tr>
</tbody>
</table>

> Despite paying revenue share to some right holders, public video/audio platforms host a significant share of cultural content on which they do not pay compensation to right holders

> Represent the leading video and audio services alongside with OTT services

3 How do they generate revenue?

4 Why are they important?

Source: YouTube, Billboard, Soundcloud’s management interview reports, Roland Berger analysis
Public Video/Audio Platforms are player-based services

Technical intermediaries – Cloud Services – Public video/ audio platforms

**YouTube**

> Revenue model is primarily based on **advertising**:
  - In-stream
  - In-display

**Soundcloud**

> Revenue model is primarily based on **subscriptions**:
  - **Premium users** who want to **upload** their own musical content (historically promotional purpose)

Source: YouTube, Soundcloud, Roland Berger analysis
The overall EU value gap yields from a bottom-up and segmented approach

Methodology

1. Analysis of the Value Chain and identification of key players per typology

2. Assessment for main players, of the share of revenue directly and indirectly generated / due to cultural content

3. Extrapolation of the results to build the European picture
   - **Extrapolate** data either for an **industry** (e.g., music) or to a given **typology** of players (e.g., search engine)
   - **Example**: Google has 96% of market share (# users in EU, 2014), which easily provides a reliable picture of search engines

Source: Roland Berger analysis
Content direct contribution to revenue generation can be assessed as well as implicit contribution to value creation.

Content direct impact on value creation

Approach for revenue generation: direct

- **Lever 1**
  - Sub-levers
  - KSF
  - Role of content = Direct contribution to revenue generation

- **Lever 2**
  - Sub-levers
  - KSF
  - Role of content = Direct contribution to revenue generation

Implicit value creation mechanisms

- Is it a main lever in player X business model?
  - Market capitalization
  - Market share
  - Share of wallet
  - Brand image
  - Better understanding of users and needs
  - Customer data monetization
  - Machine learning

Overall value creation driven by cultural content

Source: Roland Berger analysis
### Key success factors of technical intermediaries – Glossary

<table>
<thead>
<tr>
<th>Key success factor</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usage quality</td>
<td>Quality of the customer experience on the players’ website/application (Ergonomics, streaming speed, …)</td>
</tr>
<tr>
<td>Content range</td>
<td>Breath and depth of the range of cultural content proposed</td>
</tr>
<tr>
<td>Content quality</td>
<td>Quality of the range of content offered</td>
</tr>
<tr>
<td>Customer targeting</td>
<td>Ability to enhance customer monetization through a better understanding of its needs</td>
</tr>
<tr>
<td>Customer stickiness</td>
<td>Loyalty / likeliness of the consumer to use a service on a regular basis</td>
</tr>
<tr>
<td>Price competitiveness</td>
<td>Competitiveness of the offer’s price compared to its competitors</td>
</tr>
<tr>
<td>Ubiquity for advertisers</td>
<td>Ability for an advertiser to be present for multiple targeted customers, on multiple website and devices at the same time</td>
</tr>
<tr>
<td>Ads relevance</td>
<td>Relevance of an ad in the eye of the targeted customer, based on its habits and tastes</td>
</tr>
<tr>
<td>Virality (Tribe effect)</td>
<td>Propensity of an offer to generate strong adherence from consumers</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Key success factor</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ads format</td>
<td>Size and location of ads allowing players to monetize a large inventory</td>
</tr>
<tr>
<td>Fill rate</td>
<td>Measure of inventory effectiveness at meeting demand</td>
</tr>
<tr>
<td>Competition (RTB)</td>
<td>Existence of a competitive environment (Real-time bidding for example) allowing the player to optimize the revenue of its advertising space</td>
</tr>
<tr>
<td>Large size content storage/ sharing need</td>
<td>Propensity of targeted consumers to necessitate a large size of content storage</td>
</tr>
<tr>
<td>Storage capacity</td>
<td>Cultural content storage capacity offered by a player to its subscribers in the frame of a free or paying service</td>
</tr>
<tr>
<td>Others</td>
<td>Definition</td>
</tr>
<tr>
<td>Freemium</td>
<td>Tiered service model, with an ad-supported free offer and a paying premium offer</td>
</tr>
<tr>
<td>KSF</td>
<td>Key Success Factor</td>
</tr>
<tr>
<td>KPI</td>
<td>Key Performance Indicator</td>
</tr>
<tr>
<td>CPC</td>
<td>Cot per Click (for ads)</td>
</tr>
</tbody>
</table>

Source: Roland Berger analysis
Passive and declarative studies were conducted by specialized agencies in order to understand usages on Facebook and Google.

**Methodology for Cultural Contents usage identification in Usage Studies**

<table>
<thead>
<tr>
<th>Search Engines</th>
<th>Market research company</th>
<th>Type</th>
<th>Process</th>
<th>Period</th>
</tr>
</thead>
</table>
| Google         | mediametric // NetRatings + Sépage | Passive study | > Constitute a representative panel of users and track their search journeys  
> Scrap data from all clicked Web pages  
> Analyze data thanks to Semantic Web (after a Machine Learning phase)  
> Identify destinations | France: Week 4 - Week 8 of 2015 (February 2015)  
Italy: Week 9 - Week 13 of 2015 (March 2015) |

<table>
<thead>
<tr>
<th>Social Media</th>
<th>Market research company</th>
<th>Type</th>
<th>Process</th>
<th>Period</th>
</tr>
</thead>
</table>
| Facebook     | Ipsos                    | Declarative study | > Draw up a questionnaire to address to Facebook’s Active users  
> Collect usage data from the panel (Publish/Share, Open, Comment & Like)  
> Analyze results through cross tabulations  
> Identify actions and consumptions | France: Week 14 of 2015 (March-April 2015)  
Italy: Week 14 of 2015 (June 2015) |

Source: Roland Berger
4 usage types and 11 categories of cultural contents were identified

**Definition of different usage types and categories of cultural contents**

<table>
<thead>
<tr>
<th>Usage types considered in surveys</th>
<th>Categories of cultural contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; <strong>Access</strong>: digital works downloads and streaming</td>
<td>✓ Press</td>
</tr>
<tr>
<td>&gt; <strong>E-commerce</strong>: physical goods e-commerce and ticketing</td>
<td>✓ Music</td>
</tr>
<tr>
<td>&gt; <strong>Social</strong>: interactions via social media and forums</td>
<td>✓ Live (incl. Music)</td>
</tr>
<tr>
<td>&gt; <strong>Other</strong>: encyclopedia and other information, illicit contents</td>
<td>✓ Radio</td>
</tr>
<tr>
<td></td>
<td>✓ TV</td>
</tr>
<tr>
<td></td>
<td>✓ Cinema</td>
</tr>
<tr>
<td></td>
<td>✓ Video Games</td>
</tr>
<tr>
<td></td>
<td>✓ Visual Arts (incl. Architecture)</td>
</tr>
<tr>
<td>&gt; <strong>All previous items</strong></td>
<td>✓ All previous items</td>
</tr>
<tr>
<td>&gt; For <strong>Access</strong> only: Digital works downloads and streaming, licit and illicit alike (the questionnaire did not distinguish between licit and illicit contents)</td>
<td>✓ Advertising</td>
</tr>
<tr>
<td>&gt; <strong>4 types of actions</strong> considered:</td>
<td>✓ Internet videos</td>
</tr>
<tr>
<td>- Open</td>
<td></td>
</tr>
<tr>
<td>- Post/Share</td>
<td></td>
</tr>
<tr>
<td>- Comment</td>
<td></td>
</tr>
<tr>
<td>- Click on &quot;Like&quot; button</td>
<td></td>
</tr>
</tbody>
</table>

Source: Roland Berger
The share of Cultural Content in the activity of Google users has been measured via the automatic qualifications of a tailored algorithm

Passive Study Methodology on Search Engines

Objectives

1. Constitute a representative panel of users and track their search journeys: panels of 2 x 2,000 Search Engines users (FR/IT)

2. Scrap relevant data (title, text, media) from all clicked Web pages

3. Analyze data thanks to Semantic Web
   - **Gold Standard**: leverage human natural knowledge to qualify usage data:
     - 10 experts from different fields in France, 4 in Italy
     - Panel of 2 x 150 Search Engines users (FR/IT)
     - 5,955 lines of qualified data in France, 3,000 lines in Italy
   - **Machine Learning**: develop algorithms to match Gold Standard results (at the level of Cultural Contents)
   - **API (Application Programming Interface)**: apply the algorithms to a much larger sample of usage, towards Big Data...: 72,818 lines of qualified data in France, 141,537 in Italy

Source: Roland Berger
A three-step method was implemented to determine the share of Cultural Content in the daily activity of Facebook’s active users

Declarative Study Methodology on Social Media

Objectives

1. Draw up the questionnaire
   > Determine the profile of “active users” and assess their proportion
   > Test the questionnaire

2. Collect data from the panel
   > Recruit at least 1,000 participants corresponding to the profile and willing to complete the questionnaire

3. Analyze the results
   > Recover participants’ daily log books (Facebook activity reports) then compile and analyze it (cross-tabs)

Details

> 1,008 Online interviews + 12 qualitative interviews in **France**, 1,084 Online interviews in **Italy**, of people representative of the population (aged from 16 to 75)

> **Active users** must connect to Facebook at least once during the week and make at least one action

> Out of the 1,000 recruited participants in **France**, 670 filled in their reports at least once a week and **370 every day** of the week

> Out of the 2,000 recruited participants in **Italy**, 1,573 filled in their reports at least once a week and **1,120 every day** of the week
### Contents

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<thead>
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<th>Section</th>
<th>Page</th>
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<td>2. Benchmark of licensed digital content distributors</td>
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This document shall be treated as confidential. It has been compiled for the exclusive, internal use by our client and is not complete without the underlying detail analyses and the oral presentation. It may not be passed on and/or may not be made available to third parties without prior written consent from Roland Berger Strategy Consultants. RBSC does not assume any responsibility for the completeness and accuracy of the statements made in this document.
Licensed digital content distributors are the reference channel for digital distribution - ~70% of gross revenue is spent on content

> Licensed digital content distributors are of importance as they tend to stand as the reference channel for content distribution, being for example for music (Spotify) or video (Netflix)

> Licensed digital content distributors include both pure online players (Spotify) and players that successfully achieved a digital transformation, as illustrated by Netflix which historical activity (DVD rentals) accounts for less than 15% of revenue as of today

> Cultural content is therefore both the basis and the core of their Business Model and is a key factor to retain customers – 100% of their value and revenue are based on distributed cultural content

> Players are now strongly challenged in the new environment, as illustrated by the current shake-up taking place between record companies, cultural content e-shops and rip-based content aggregators / content hosts (e.g. Grooveshark shutdown in may 2015)

> Value creation mechanism can differ from one player to other:

**A** Spotify – freemium model – Average royalty repayment of 70% of gross revenue
- 9% of revenue is generated by advertising to “free” users; those represent 2/3 of the customer base and have a negative average net revenue per user (ARPU, after royalties)
- 91% of revenue is generated by premium users fees; those represent 1/3 of the customer base and generate a net ARPU of ~42.7 EUR per year (after royalties)
- Overall, Spotify generates an average annual net revenue per user of 5.1 EUR (after royalties)

**B** Netflix – subscription-based model – Average content acquisition cost of 73% of gross revenue
- 100% of Netflix revenue is generated by subscriptions (DVD rental and video streaming)
- 86% of revenue is generated by video streaming, which is used by 89% of the customer base (gross ARPU of 62 EUR)
- Overall, the website generates an average annual net revenue per subscriber of 16.6 EUR per user

1) *This figure is based on blended approach of free and paid streams. It is to be noted that the business model mainly relies on the subscription model, which is more likely to be the proxy when comparing with the completely free streaming services undertaken by the “technical intermediaries” analysed in this report*. 

Source: Roland Berger analysis
Players are now strongly challenged in the battle over music industry economics

Digital music ecosystem – Key stakes

- Grooveshark close in May 2015 following juridical disputes with majors
- Pressure to close illegal websites
- Illegal music services
- Pressure to encourage users to pay
- Freemium services
- Pressure on fees
- Paying music services
- Pressure to stop partnering with freemium players
- Music labels
- Apple is currently pressuring on majors to force freemium services to end partnerships with freemium services
- Labels are threatening Apple new music service (iTunes + Beats) to end partnerships if they do not raise subscriptions prices
- Jay-Z accuses “big companies” to spent millions to denigrate its new music service Tidal
- Universal is currently pressuring Spotify to differentiate its premium and free offers in order to encourage users to subscribe to paying offer

Source: Press, Roland Berger analysis
Benchmark of Licensed digital content distributors

Spotify and Netflix are benchmark as OTT content distributors due to their role model in commercial music and video digital streaming

Benchmarking rationales

A

> Global leader in music streaming service
> Freemium model combining ad-based and subscription-based revenue sources
> Agreements with right holders
> Absence of pirated content
> 7 funding rounds since the creation of the company, for a total amount of USD 538 m, new round in progress for USD 350 m

B

> Global leader in video streaming service
> Example of paradigm change management: switch from historical video content physical rental to cloud-based video content streaming
> Exclusive subscription-based revenue source
> Absence of traffic-driven performance indicators (no advertising)
> Absence of pirated content
> Pioneer of original content production as a content distribution pure-player (ex: House of cards)

Spotify and Netflix KPI can be used when necessary as proxies for similar services but "rip-based" free platforms

Source: Press release, Roland Berger analysis
OTT players compete with traditional content distributors and managed networks with an IP-based on-demand content offer to their customers.

Licensed digital content distributors description: OTT services

**Who are they?**

<table>
<thead>
<tr>
<th>Subscription-based</th>
<th>E-commerce</th>
</tr>
</thead>
</table>
| Spotify, Netflix,
DEEZER | Amazon, iTunes, Google play |

Players in # of users [Global; millions; 2014]

- **Spotify**: 45
- **DEEZER**: 16
- **Netflix**: 10

**Why are they important?**

- **Main legal content rental / purchase services of cultural content**, streamed to the customer's device.
- **Cultural content displayed in the frame of an agreement with right holders.**

**How do they generate revenue?**

<table>
<thead>
<tr>
<th>Subscription-based</th>
<th>E-commerce</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main revenue generation approach</strong></td>
<td><strong>Main revenue generation approach</strong></td>
</tr>
<tr>
<td>Freemium model</td>
<td>Content selling</td>
</tr>
<tr>
<td>Subscription-based paying offer</td>
<td>Advertising-base free offer</td>
</tr>
<tr>
<td>Available inventory</td>
<td></td>
</tr>
</tbody>
</table>

**Opportunity** to position themselves as the reference legal channel for cultural content streaming distribution.

Source: Roland Berger analysis
Spotify revenue model is based on both advertising and paying subscriptions

Benchmark – Licensed digital content distributors business model

### Revenue model

<table>
<thead>
<tr>
<th>Advertising revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td># plays</td>
</tr>
<tr>
<td># plays / free user</td>
</tr>
<tr>
<td># plays / track</td>
</tr>
<tr>
<td>Paying subscription revenue</td>
</tr>
<tr>
<td># premium subscribers</td>
</tr>
</tbody>
</table>

### Key Success Factors

- Usage quality
- Content range
- Content quality
- Customer targeting
- Price competitiveness

### Qualitative estimate of the role of content

- **Content availability** and **content uniqueness** impact directly customer perception on the offer and their **willingness to consume** more content.

- **Musical consumption profile** can enhance Spotify customer targeting.

- **Content availability** and **content uniqueness** impact directly customer perception on the offer and their **willingness to subscribe** to Spotify.

- Cultural content does not have a direct impact on price competitiveness.

---

1) Cost Per Mille: price paid by advertisers for 1000 ads

Source: Roland Berger analysis
Spotify revenue is increasing at ~75% p.a. since 2011, with Europe amounting 40% of the revenue in 2014.

General key metrics – Revenue [World; EUR m]

1) Europe: assumption of decreasing share of total Revenue

Source: Spotify’s corporate website, press reviews, Roland Berger analysis
Spotify is growing at ~45% p.a. in Europe since 2011, with 91% of revenue coming from premium subscriptions in 2014.

### Financial key metrics

#### Revenue and EBITDA [Europe\(^1\); EUR m]

<table>
<thead>
<tr>
<th>Year</th>
<th>Revenue</th>
<th>EBITDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>134</td>
<td>-17</td>
</tr>
<tr>
<td>2012</td>
<td>264</td>
<td>-48</td>
</tr>
<tr>
<td>2013</td>
<td>367</td>
<td>-47</td>
</tr>
<tr>
<td>2014</td>
<td>407</td>
<td></td>
</tr>
</tbody>
</table>

+45% p.a.

**Revenue source [2014]**

- Advertising: ~9%
- Premium subscriptions: ~91%

**Revenue split [2014]**

- Spotify: ~30%
- Right holders: ~70%

**Costs**

Total annual royalties pay out [USD; 2011-2014] $\Sigma = 2\text{bn}$

<table>
<thead>
<tr>
<th>Year</th>
<th>Streaming Service</th>
<th>Radio Streaming Service</th>
<th>per 1m players</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>500m</td>
<td>1bn</td>
<td>~6,000 - 8,400</td>
</tr>
<tr>
<td>2012</td>
<td>500m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Royalties [USD; 2014]**

- Spotify: 3,000
- Video Streaming Service: ~1,500
- Album on iTunes: ~0.3
- Album Track on iTunes: 1.12
- CD: 0.11

1) Europe: assumption of decreasing share of total revenue
2) 60% royalties paid for free users in 2014

Source: Spotify’s corporate website, press reviews, Roland Berger analysis
Spotify European customer base increased by 100% in 2014, mostly due to launch in 8 new markets in 2013

Customer metrics

Monthly active users [Europe\(^1\); m users]

<table>
<thead>
<tr>
<th>Year</th>
<th>Free monthly active users</th>
<th>Premium monthly active users</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>7</td>
<td>83% 17%</td>
</tr>
<tr>
<td>2012</td>
<td>9</td>
<td>82% 18%</td>
</tr>
<tr>
<td>2013</td>
<td>12</td>
<td>75% 25%</td>
</tr>
<tr>
<td>2014</td>
<td></td>
<td>75% 25%</td>
</tr>
</tbody>
</table>

Other key figures [2014]

- Average revenue per premium user per year in 2014: 82 €
- Monthly churn rate in 2012: 20%

Source: Spotify's corporate website, press reviews, Roland Berger analysis

1) Europe: assumption of decreasing share of total revenue
Spotify profitability relies entirely on premium subscribers with an almost EUR -7.5 loss per free user in 2014

### Revenue assessment [Europe; 2014]

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>End of year total/average</strong></td>
<td>407</td>
<td>285</td>
<td>12</td>
<td>2013</td>
<td>2014</td>
<td>17.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>18</td>
<td>11.9</td>
</tr>
<tr>
<td><strong>Full year average</strong></td>
<td>22.6</td>
<td>15.8</td>
<td></td>
<td></td>
<td>6.8</td>
<td>5.1</td>
</tr>
<tr>
<td><strong>End of year Premium</strong></td>
<td>370 (91%)</td>
<td>114 (40%)</td>
<td>3</td>
<td>6</td>
<td>25%</td>
<td>61.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4.5</td>
<td>19.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>82.2</td>
<td>56.9</td>
</tr>
<tr>
<td><strong>Full year average</strong></td>
<td>82.2</td>
<td>25.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>End of year Free</strong></td>
<td>37 (9%)</td>
<td>171 (60%)</td>
<td>9</td>
<td>18</td>
<td>75%</td>
<td>2.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>13.5</td>
<td>9.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12.7</td>
<td>-7.4</td>
</tr>
<tr>
<td><strong>Full year average</strong></td>
<td>2.7</td>
<td>12.7</td>
<td></td>
<td></td>
<td></td>
<td>-10.0</td>
</tr>
</tbody>
</table>

**NOTE:** Assuming premium subscribers consume twice the level of music consumed by free subscribers – see back-up

Source: Spotify's corporate website, press reviews, Roland Berger analysis
A conservative approach, assumes that premium users consume about twice as much content as free users

User consumption – Free vs. premium subscribers

<table>
<thead>
<tr>
<th>High case based on a 146-minute listening time per user per day on average</th>
<th>Conservative case based on a 110-minute listening time per user per day on average</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong># customers (millions)</strong></td>
<td><strong>Time spent daily (minutes)</strong></td>
</tr>
<tr>
<td>Total / average</td>
<td>x 146</td>
</tr>
<tr>
<td>Premium</td>
<td>6 x 332</td>
</tr>
<tr>
<td></td>
<td>+</td>
</tr>
<tr>
<td>Free</td>
<td>18 x 84</td>
</tr>
</tbody>
</table>

xx : data from press review

RB preferred approach

Source: Spotify’s corporate website, press reviews, Roland Berger analysis
Spotify Business Model is fully based on legal cultural content distribution (i.e. Music, to date)

Calculation of the cultural content direct impact on revenue [Europe; 2014; EUR m]

Share of copyrighted content consumption\(^1\) = 100%

1) in opposition to user generated content (UGC)

Source: Roland Berger analysis
Netflix business model entirely relies on subscriptions, either for content streaming or for DVD rental (in the US only)

Benchmark – Licensed digital content distributors business model

Revenue model

Netflix

Revenue model

# subscribers

Streaming subscription revenue

# subscribers

DVD subscription revenue

# subscribers

Source: Roland Berger analysis
Through its video streaming offer, Netflix became a worldwide leader, with Europe accounting for ~15% of its total revenue in 2014.

General key metric – Revenue [World; EUR m]

Source: Netflix corporate website, press reviews, Roland Berger analysis

1) Europe: press review in 2013, proxy based on international revenue published by Netflix
Although Netflix is not breaking even in Europe by 2014, its revenue has been increasing significantly year on year since 2012.

Financial key metrics

**Revenue** [Europe\(^1\); EUR m]

<table>
<thead>
<tr>
<th>Year</th>
<th>Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>n.a.</td>
</tr>
<tr>
<td>2012</td>
<td>74</td>
</tr>
<tr>
<td>2013</td>
<td>294</td>
</tr>
<tr>
<td>2014</td>
<td>642</td>
</tr>
</tbody>
</table>

\(^1\) Europe: press review in 2013, proxy based on international revenue published by Netflix

Source: Netflix corporate website, press reviews, Roland Berger analysis

**Revenue sources** [2014]

- International Streaming: ~24%
- US Streaming: ~62%
- DVD US: ~14%

**Costs**

- Streaming revenue vs. content cost [Global; 2014; USD m]
  - 4,764
- Not including
  - 300 m $ Global original content investments in 2014

**Gross margin**

- 1,988 (42%)
Netflix subscriber base for video streaming outside the US now accounts for 29% of total subscribers vs. 15% in 2012

Customer metrics

**Number of monthly active users [World; m users]**

- **2011**: 35 (22 (62%), 11 (32%), 2 (5%), 27 (65%), US Streaming)
- **2012**: 41 (27 (65%), 8 (20%), 2 (15%), 6 (15%), Rest of the World Streaming)
- **2013**: 51 (33 (65%), 7 (14%), 11 (21%), US Streaming)
- **2014**: 63 (39 (62%), 6 (9%), 18 (29%), DVD US)

**Projected number of Netflix subscribers in European countries in 2020**

- Germany: 11.3
- United Kingdom: 9.5
- France: 8.3
- Netherlands: 2.5
- Sweden: 1.6
- Belgium: 1.4
- Switzerland: 1.3
- Austria: 1.1
- Denmark: 0.9
- Finland: 0.9
- Norway: 0.8
- Ireland: 0.6
- Luxembourg: 0.1

Source: Netflix's corporate publications, Digital TV research, press reviews, Roland Berger analysis
With an average net revenue per streaming subscriber of ~USD 16.6, Netflix largely overperforms Spotify profitability

Revenue assessment [2014]

<table>
<thead>
<tr>
<th>Revenue [EUR m]</th>
<th>Content acquisition cost [EUR m]</th>
<th># users [m]</th>
<th>Revenue / user [EUR]</th>
<th>Content acquisition cost / user [EUR]</th>
<th>Net revenue (excl. content acq. costs) [EUR]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total / streaming</td>
<td>3 582</td>
<td>2 627</td>
<td>57</td>
<td>62</td>
<td>46</td>
</tr>
<tr>
<td>Streaming US</td>
<td>2 593 (72%)</td>
<td>1 724 (66%)</td>
<td>39</td>
<td>66</td>
<td>44</td>
</tr>
<tr>
<td>Streaming international</td>
<td>989 (28%)</td>
<td>903 (34%)</td>
<td>18</td>
<td>54</td>
<td>49</td>
</tr>
<tr>
<td>DVD US</td>
<td>578</td>
<td>311</td>
<td>6</td>
<td>100</td>
<td>54</td>
</tr>
</tbody>
</table>

Source: Netflix corporate website, press reviews, Roland Berger analysis

Reminder: Spotify ~EUR 6
100% of the Netflix distributed content is cultural copyrighted content and original own produced content (i.e. video)

Calculation of the cultural content direct impact on revenue [Europe\(^1\); 2014; EUR m]

<table>
<thead>
<tr>
<th>Total revenue</th>
<th>Cultural content factor</th>
<th>Cultural content direct impact on revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subscriptions</td>
<td>Revenue</td>
<td>642</td>
</tr>
</tbody>
</table>

Share of copyrighted and own\(^2\) content consumption = 100%

70% paid as royalties

---

1) Europe : press review in 2013, proxy based on international revenue published by Netflix
2) House of cards, Orange is the new black, …

Source: Netflix's corporate publications, press reviews, Roland Berger analysis
Benchmarked pure online licensed digital content distribution players from music and video industries show comparable value sharing approaches with right holders

Benchmarks summary on online content streaming [2014]

<table>
<thead>
<tr>
<th>Audio</th>
<th>Video</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average royalty repayment [% of revenue]</strong></td>
<td><strong>Average content acquisition cost [% of revenue]</strong></td>
</tr>
<tr>
<td>70%</td>
<td>73%</td>
</tr>
<tr>
<td><strong>Annual net revenue per user</strong>&lt;sup&gt;1)&lt;/sup&gt;</td>
<td><strong>Annual net revenue per user</strong>&lt;sup&gt;1)&lt;/sup&gt;</td>
</tr>
<tr>
<td>EUR 5.1</td>
<td>EUR 16.6</td>
</tr>
<tr>
<td><strong>Annual net revenue per premium user</strong>&lt;sup&gt;1)&lt;/sup&gt;</td>
<td><strong>Annual net revenue per streamer (excl. US)</strong>&lt;sup&gt;1)&lt;/sup&gt; (after content costs)</td>
</tr>
<tr>
<td>EUR 42.7</td>
<td>EUR 22.2</td>
</tr>
<tr>
<td><strong>Annual net revenue per free user</strong>&lt;sup&gt;1)&lt;/sup&gt;</td>
<td><strong>Annual net revenue per streamer (after content costs)</strong></td>
</tr>
<tr>
<td>EUR -7.4</td>
<td>EUR 4.7</td>
</tr>
<tr>
<td><strong>Royalties per digital listen</strong></td>
<td></td>
</tr>
<tr>
<td>EUR 0.006</td>
<td></td>
</tr>
</tbody>
</table>

1) Number of users: end of period

Source: Roland Berger analysis
Beyond Music & Video, other cultural content start to be distributed via alternative copyrighted content players: Blendle & the press

Development of the "iTunes for the Press" – Blendle

Company overview

- Dutch company launched officially in April 2014 by two 27 years old journalists
- Service of pay per view for press articles, available on Blendle website and app
- Newsfeeds of stories about the topics customers are interested in, with articles they can read further by clicking on them
- No marketing budget required during the first year of activity
- EUR 3 m invested in October 2014 by Axel Springer and the New York Times to foster international expansion

Business Model

- Customers
  - 1st credit of EUR 2.5 upon registration
  - EUR 0.10 to EUR 0.80 per article viewed
  - Refund if no satisfaction (feedbacks required; ~5% of articles read)
- 70% of revenue
- NEWSPAPERS

Customer base [#]

<table>
<thead>
<tr>
<th></th>
<th>Apr-14</th>
<th>Aug-14</th>
<th>Nov-14</th>
<th>Mar-15</th>
<th>Apr-15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>0</td>
<td>100,000</td>
<td>135,000</td>
<td>220,000</td>
<td>250,000</td>
</tr>
</tbody>
</table>

Source: Business Insider, Medium.com, Blendle website, Roland Berger analysis

20% Constant conversion rate to paying users
60% of users are between 20 and 35 years old, not previously used / willing to pay for journalism
In 2015, other players are following Blendle and entering the press micropayment arena: example of Onemoretab and Jolstore

Development of the "iTunes for the Press" – Onemoretab and Jolstore

**OneMoreTab**

- Launched initially as a **free and unlimited customized portal** of news information in 2013; with **300,000 unique visitors** claimed for 2014
- Aiming at developing **paid usage and content**, to be launched in S1 2015, with the following **concept and objectives**
  - Fixed price of **EUR 0,20** per article
  - **70% of revenue** given back to the media companies
  - **100,000 users** within 12 months

**JolStore**

- Launched in **132 countries**, including France, part of the JolGroup
- **Content**: press articles, photos and videos
- Running in France since the **end of 2014** thanks to:
  - **Independent** editors and journalists (2,600), following first agreements with 6Medias and Visual agencies
  - Agreements with Chine Nouvelle in January 2015, and Amaury group for a 3 months trial in March 2015
- Fund raising of **EUR 1 m in 2014**, and intension to raise **EUR 5 m in 2015**
- **Business Model**:
  - JolStore revenue coming from editors and journalists subscriptions to use the platform (EUR 12 per month in France)
  - **90% of revenue** given back to the media companies, **10% to the technical intermediaries** (eg PayPal)
  - Between **EUR 0.05 to EUR 0.20** per article, price set by the author

What will be the position of newspapers in European countries? Is there a risk on their brand value, or of cannibalisation of their current individual digital subscriptions?

Source: Press releases, company websites, Roland Berger analysis
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<td>4.5 Private cloud</td>
<td>186</td>
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</tr>
</tbody>
</table>

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Beyond revenues, all intermediaries benefit from the impact of cultural content on implicit and collateral value creation

Importance of cultural content in other mechanisms of value creation

<table>
<thead>
<tr>
<th>Importance of cultural content in implicit value creation</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Search engines</strong>&lt;br&gt;Google</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td>&gt; The relevance and exhaustiveness of search results will impact the relative performance of players like Google, with direct consequences on market capitalization / share, brand image, or better understanding of users and needs</td>
<td></td>
</tr>
<tr>
<td><strong>Content aggregators</strong>&lt;br&gt;TuneIn</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; Cultural content is at the heart of players business like TuneIn, with content range and quality impacting mostly the market share and brand image</td>
<td></td>
</tr>
<tr>
<td><strong>Social Media</strong>&lt;br&gt;Facebook, Twitter</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; Cultural content has an impact on customer stickiness and therefore market capitalization, but it also impacts heavily the understanding of users and needs when the content is shared, liked or commented</td>
<td></td>
</tr>
<tr>
<td><strong>Public clouds and platforms</strong>&lt;br&gt;YouTube, Dropbox, Box</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; Public platforms benefit mostly but strongly from the collateral effect of direct value creation on sites embedding content from public cloud services</td>
<td></td>
</tr>
</tbody>
</table>

Source: Roland Berger analysis
The direct European cultural content value differ from one intermediary typology to the other – overall several billions at stake

Overview of technical intermediaries – [Cultural content in Europe; EUR m ; %]¹)

<table>
<thead>
<tr>
<th>Main player identified and analyzed</th>
<th>Total Revenue</th>
<th>Direct impact of CC</th>
<th>Europe</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Typology and player example</strong></td>
<td><strong>Total Market value</strong></td>
<td><strong>Direct impact of CC</strong></td>
<td></td>
</tr>
<tr>
<td>Search engines</td>
<td>15 470</td>
<td>~2 835 (18%)</td>
<td>16 140</td>
</tr>
<tr>
<td>Content aggregators (music)</td>
<td>20</td>
<td>~15 (75%)</td>
<td>100</td>
</tr>
<tr>
<td>Social Media</td>
<td>2 450</td>
<td>~1040 (43%)</td>
<td>3 160</td>
</tr>
<tr>
<td>Lockers</td>
<td>100</td>
<td>~3 (3%)</td>
<td>1 740</td>
</tr>
<tr>
<td>Public video platforms</td>
<td>720</td>
<td>~475 (66%)</td>
<td>845</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>21 985</strong></td>
<td><strong>~4 980 (23%)</strong></td>
<td></td>
</tr>
</tbody>
</table>

¹) All figures rounded from most accurate calculation – hence offsets in sums of figures presented

Source: Roland Berger analysis
## Contents

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4.1 Search engines
Among search engines, Google has a near monopoly in Europe, driving most of its search revenue from sponsored links.

**Technical intermediaries description – Search engines**

### Who are they?

- **Google**
- **Bing**
- **Yahoo!**
- **DuckDuckGo**
- **Qwant**

**Market share** [Europe; 2014; users]

- **Google**: 96%
- **Bing**: 3%
- **Yahoo!**: 2%
- **Others**: 0%

### Why are they important?

- **Internet navigation main tool**
- **Frequent entry point** to any destination on the web
- **Directing towards cultural contents** published:
  - by right-holders (e.g. blogs)
  - on "legal" platforms (e.g. YouTube)
  - elsewhere (e.g. Facebook, but also illegal platforms)

### How do they generate revenue?

- **Main revenue generation approach**
  - Sponsored links
- **Main revenue generation levers**
  - Available inventory
  - Valuation of the inventory

Source: Press, Roland Berger analysis
Cultural content contributed ~65% to the 2014 European search market (EUR 10.5 bn), out of which ~18% directly (EUR 3 bn)

Europe – Extrapolation of Google analysis on the search market

Methodology – Volume market share

> European search revenue coming directly and indirectly from cultural content was analyzed based on Google revenue and user market share analyses

> Google had a 96% market share in terms of users in Europe in 2014

> Assumption of similar search and revenue breakdown to Google’s for other players (e.g. Yahoo!, Bing, Qwant, etc.)

> Assumption on other players’ monetization capacity: 50% of Google’s

Results

Google

\[ \Sigma = \text{EUR 15.5 bn} \]

96% of the market [\# users]

Europe

\[ \Sigma = \text{EUR 16.1 bn} \]

100% of the market

Direct impact of cultural impact

Indirect impact of cultural impact

Ad revenue not impacted by cultural content

Total impact = EUR 10.1 bn

Total impact = EUR 10.5 bn

Source: Roland Berger analysis
Content strongly contributes to search engines revenue model thanks to their availability on the net and ability to be indexed

Content role in Search engines business model

### Revenue model

- **Google**
  - # clicks
  - # sponsored links displayed
  - # searches
  - Fill rate
  - # users

### Key Success Factors

- Customer stickiness
- Thoroughness
- Relevance
- Ubiquity for advertisers
- Ads relevance
- Customer targeting (ROI for advertisers)
- Ubiquity for adv. (Bidding intensity)

### Qualitative estimate of the role of content

<table>
<thead>
<tr>
<th>Key Success Factors</th>
<th>Qualitative estimate of the role of content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer stickiness</td>
<td>Cultural content contributes to overall thoroughness and relevance. This entails stickiness by providing exhaustive and relevant answers to users.</td>
</tr>
<tr>
<td>Thoroughness</td>
<td>Cultural content does not have a direct impact on ubiquity for advertisers and ads relevance.</td>
</tr>
<tr>
<td>Relevance</td>
<td>Users’ online behaviors with respect to cultural content: &gt; provide information regarding their needs &gt; contribute to develop their consumption profiles &gt; enable monetization through targeted advertising solutions</td>
</tr>
<tr>
<td>Ubiquity for advertisers</td>
<td>KSF also drive indirect (market capitalization, brand image, ...) and implicit (machine learning, users understanding, ...) value creation</td>
</tr>
<tr>
<td>Ads relevance</td>
<td></td>
</tr>
<tr>
<td>Customer targeting (ROI for advertisers)</td>
<td></td>
</tr>
<tr>
<td>Ubiquity for adv. (Bidding intensity)</td>
<td></td>
</tr>
</tbody>
</table>

---

1) Limited to the search function and excluding other search engines revenue sources
2) Cost Per Click: price paid by advertiser per sponsored link clicked by user
3) Click Through Rate: number of click per sponsored link
4) Average number of sponsored links per search

Source: Roland Berger analysis
Europe accounts for ~35% of Google global revenue

General key metrics – Revenue [World; EUR bn]

<table>
<thead>
<tr>
<th>Year</th>
<th>International revenue (excl. Europe)</th>
<th>Europe 1)</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>44%</td>
<td>35%</td>
<td>21%</td>
</tr>
<tr>
<td>2013</td>
<td>43%</td>
<td>35%</td>
<td>22%</td>
</tr>
<tr>
<td>2014</td>
<td>42%</td>
<td>35%</td>
<td>23%</td>
</tr>
</tbody>
</table>

1) Europe: proxy based on international revenue and number of users

Distribution of global revenue [EUR bn]

- Other: 5% in 2012, 5% in 2013, 11% in 2014
- Youtube.com: 27% in 2012, 24% in 2013, 21% in 2014
- Google network: 5% in 2012, 6% in 2013, 8% in 2014
- Google.com: 63% in 2012, 62% in 2013, 60% in 2014

Source: Google, press, Roland Berger analysis
Google Search benefits from a near monopoly in Europe and generates ~EUR 15.5 bn in 2014 from sponsored links advertising

Financial key metrics – Revenue and EBITDA [Europe\(^1\); EUR bn]

<table>
<thead>
<tr>
<th>Year</th>
<th>Google Search Revenue(^2)</th>
<th>EBITDA (as % of revenues)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>EUR 14.5 bn</td>
<td>31.4%</td>
</tr>
<tr>
<td>2013</td>
<td>EUR 16.0 bn</td>
<td>28.7%</td>
</tr>
<tr>
<td>2014</td>
<td>EUR 18.0 bn</td>
<td>32.5%</td>
</tr>
</tbody>
</table>

Comments

96% Market share in 2014 in Europe in number of users

Scope

- **Google network**: sponsored links and display on 3rd party sites (with revenue share)
- **Google.com**: sponsored links on Google Search
- **Youtube.com**: ads on YouTube
- **Other**: services

1) Europe: proxy based on # of users and country data  
2) Sponsored links and advertising

Source: Google, press, Roland Berger analysis
### Cultural content may have an overall impact of ~65% on Google advertising revenue generation

#### Synthesis of cultural content impact on overall value creation

<table>
<thead>
<tr>
<th>Description</th>
<th>Revenue generated from cultural content [EUR bn]</th>
<th>Share of total revenue</th>
<th>Comments &amp; rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong> Direct impact on revenue</td>
<td>2.8</td>
<td>18%</td>
<td>&gt; ~18% of clicks on sponsored links are for cultural content related websites (18% for country A and 19% for country B)</td>
</tr>
</tbody>
</table>
| **B** Indirect impact on revenue | 7.3 | 47% | > Overall, the withdrawal of cultural content could lower the volume of global clicked links by ~65%, including 47% due to indirect impact  
> Indirect impact is estimated based on country A and B estimates (resp. 48% and 46%) |
| **Total impact for Google** | 10.1 | 65% | > Overall, significant amount of revenue and value are impacted by cultural content: over EUR 10.1 bn  
> Content, whether cultural or not, is also key to establish the legitimacy of search engines  
> Therefore, players like Google benefit widely from cultural content in Europe |

**Source:** Google, Roland Berger analysis
Figures come from 2 studies perform in 2 European countries in 2015

Methodology

1. Direct and indirect impacts were estimated by the same methodology in each countries

2. European estimation is based on the average of impact between these 2 countries
In the light of data provided by Mediametrie / Sepage in 2015, only ~2% of clicks are sponsored links.

Detail of Google searches sample [2015; # of landing websites]

<table>
<thead>
<tr>
<th>Category</th>
<th>Natural results</th>
<th>Sponsored links</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Culture excl. press</td>
<td>99%</td>
<td>1%</td>
<td>19%</td>
</tr>
<tr>
<td>Press</td>
<td>99%</td>
<td>0.7%</td>
<td>12%</td>
</tr>
<tr>
<td>Non-culture</td>
<td>98%</td>
<td>2%</td>
<td>69%</td>
</tr>
</tbody>
</table>

TOTAL 98.3% 1.7% 31%

Source: Passive study of Search Engines queries by Médiamétrie & Sépage for creative and cultural industries, Roland Berger analysis.
Among sponsored links, ~18% are cultural content-related websites, ~5% being press related and ~13% non-press.

Calculation of the cultural content direct impact on revenue [sponsored links; %]

<table>
<thead>
<tr>
<th>Total sponsored clicked links</th>
<th>Total sponsored culture related clicked links</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-culture</td>
<td>100%</td>
</tr>
<tr>
<td>Press</td>
<td>82%</td>
</tr>
<tr>
<td>Culture related (excl. press)</td>
<td>5%</td>
</tr>
<tr>
<td>Press</td>
<td>13%</td>
</tr>
</tbody>
</table>

% of cultural content in sponsored links = \( \frac{\text{Total sponsored culture websites}}{\text{total sponsored links}} \)

= ~5% of Press culture & ~13% of non-press culture

= 18%

Cultural content direct impact on Google Search revenue = 18%

Source: Passive study of Search Engines queries by Médiamétrie & Sépage for creative and cultural industries, Roland Berger analysis
In addition to direct revenue loss, without cultural content Google may lose a minimum of 29% of its usage, hence additional revenue.

Calculation of the cultural content indirect impact on revenue [natural results] – approach 1

Distribution of clicks on natural results

<table>
<thead>
<tr>
<th>Non-culture</th>
<th>Press</th>
<th>Culture related</th>
</tr>
</thead>
<tbody>
<tr>
<td>71%</td>
<td>12%</td>
<td>17%</td>
</tr>
</tbody>
</table>

Total impact on clicked links = 29%
Equivalent to overall usage, i.e. minimum risk related to paid clicks

Comments

> This approach evaluates the share of cultural content in natural results (vs. sponsored links)
> The approach does not measure user interest for cultural content specifically
> Hence a second approach (see here after)

Source: Passive study of Search Engines queries by Médiamétrie & Sépage for creative and cultural industries, Roland Berger analysis
Without cultural content, Google would lose stickiness; an aggressive approach hints at a loss of global clicks of 84%...

Calculation of the cultural content indirect impact on revenue [natural results] – approach 2

<table>
<thead>
<tr>
<th>Share of culture in natural results clicked links</th>
<th>Share of total users</th>
<th>Average # of culture related clicked links per users</th>
<th>Assumptions</th>
<th>Average # of clicked links per users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low share of cultural content (&lt;7 clicked links)</td>
<td>41%</td>
<td>2 14 11</td>
<td>Without culture: all users at the same level as &quot;low cultural content consumers&quot; = ~11 non-cultural clicked links / users per month</td>
<td>11</td>
</tr>
<tr>
<td>High share of cultural content (8 clicked links or more)</td>
<td>59%</td>
<td>90 40 129</td>
<td>Impact on the total number of clicked links = 84% less direct impact = 84%−18% = 66%</td>
<td></td>
</tr>
</tbody>
</table>

Average number of clicked links per user = 70.6

Source: Passive study of Search Engines queries by Médiamétrie & Sépage for creative and cultural industries, Roland Berger analysis
Cultural content could therefore have contributed to 66% of revenue in 2014 in country A.

Calculation of the cultural content direct and indirect impact on ad revenue

**Google Search revenue**

[Country A; 2014; EUR bn]

<table>
<thead>
<tr>
<th>Direct impact</th>
<th>Revenue</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue not directly impacted</td>
<td>82%</td>
<td></td>
</tr>
<tr>
<td>Direct impact</td>
<td>18%</td>
<td></td>
</tr>
</tbody>
</table>

Indirect impact of content on Google revenues = 29% to 66% = \(~48\%\)

Revenue not impacted by cultural content |

<table>
<thead>
<tr>
<th>Revenue</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue not impacted by cultural content</td>
<td>34%</td>
</tr>
<tr>
<td>Indirect impact</td>
<td>48%</td>
</tr>
<tr>
<td>Direct impact</td>
<td>18%</td>
</tr>
</tbody>
</table>

Total impact = 66%

**Definitions**

**Contribution to ubiquity and stickiness**

> Users stick to Google thanks to its efficiency as an information source
> Cultural content represents \(~29\%\) of natural clicked links (12% from press)
> Users number would significantly decrease in case Google would not be able to answer to searches in the cultural field

Source: Passive study of Search Engines queries by Médiamétrie & Sépage for creative and cultural industries, Roland Berger analysis
In the light of data provided by Mediametrie / Sepage in 2015, only ~3% of clicks are sponsored links

Detail of Google searches sample [2015; # of landing websites]

Source: Passive study of Search Engines queries by Médiamétrie & Sépage for creative and cultural industries, Roland Berger analysis
Among sponsored links, ~19% are cultural content-related pages, ~2% being press related and ~17% non-press.

Calculation of the cultural content direct impact on revenue [sponsored links; %]

Total sponsored clicked links

<table>
<thead>
<tr>
<th>Non-culture</th>
<th>Press</th>
<th>Culture related (excl. press)</th>
</tr>
</thead>
<tbody>
<tr>
<td>81</td>
<td>2</td>
<td>17</td>
</tr>
</tbody>
</table>

Total sponsored culture related clicked links

<table>
<thead>
<tr>
<th>Access to press</th>
<th>Non-press access</th>
<th>E-commerce</th>
<th>Other cultural links</th>
</tr>
</thead>
<tbody>
<tr>
<td>5%</td>
<td>7%</td>
<td>23%</td>
<td>64%</td>
</tr>
</tbody>
</table>

% of cultural content in sponsored links = [Total sponsored culture websites / total sponsored links] = ~2% of Press culture & ~17% of non-press culture = 19%

Cultural content direct impact on Google Search revenue = 19%

Source: Passive study of Search Engines queries by Médiamétrie & Sépage for creative and cultural industries, Roland Berger analysis
In addition to direct revenue loss, without cultural content Google may lose a minimum of 31% of its usage, hence additional revenue.

Calculation of the cultural content indirect impact on revenue [natural results] – approach 1

**Distribution of clicks on natural results**

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-culture</td>
<td>70%</td>
</tr>
<tr>
<td>Press</td>
<td>11%</td>
</tr>
<tr>
<td>Culture related</td>
<td>20%</td>
</tr>
</tbody>
</table>

**Total impact on clicked links = 31%**
Equivalent to overall usage, i.e. minimum risk related to paid clicks

**Comments**

> This approach evaluates the share of cultural content in natural results (vs. sponsored links)
> The approach does not measure user interest for cultural content specifically
> Hence a second approach (see here after)

Source: Passive study of Search Engines queries by Médiamétrie & Sépage for creative and cultural industries, Roland Berger analysis
Without cultural content, Google would lose stickiness; an aggressive approach hints at a loss of global clicks of 79%...

Calculation of the cultural content indirect impact on revenue [natural results] – approach 2

<table>
<thead>
<tr>
<th>Share of culture in natural results clicked links</th>
<th>Share of total users</th>
<th>Average # of culture related clicked links per users</th>
<th>Assumptions</th>
<th>Average # of clicked links per users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low share of cultural content (&lt;4 clicked links)</td>
<td>53%</td>
<td>1 9</td>
<td>Without culture: all users at the same level as &quot;low cultural content consumers&quot; = ~8 non-cultural clicked links / users per month</td>
<td>8</td>
</tr>
<tr>
<td>High share of cultural content (Between 4 and 242 clicked links)</td>
<td>47%</td>
<td>46 22 68</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

Average number of clicked links per user = 36.4

Impact on the total number of clicked links = 79% less direct impact = 79% - 19% = 61%

Source: Passive study of Search Engines queries by Médiamétrie & Sépage for creative and cultural industries, Roland Berger analysis
Cultural content could therefore have contributed to 65% of revenue in 2014 in country B

Calculation of the cultural content direct and indirect impact on ad revenue

<table>
<thead>
<tr>
<th>Google Search revenue [Country B; 2014; EUR bn]</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue not directly impacted</td>
<td>81%</td>
</tr>
<tr>
<td>Direct impact</td>
<td>19%</td>
</tr>
</tbody>
</table>

Indirect impact of content on Google revenues = \(31\% \text{ to } 61\%\)

\(= \approx 46\%\)

Revenue not impacted by cultural content = 35%

Indirect impact = 46%

Direct impact = 19%

Total impact = 65%

Definitions

**Contribution to ubiquity and stickiness**

> Users stick to Google thanks to its efficiency as an information source

> Cultural content represents \(\approx 30\%\) of natural clicked links (11\% from press)

> Users number would significantly decrease in case Google would not be able to answer to searches in the cultural field

**Definitions**

~46% = 46% = 46%

Source: Passive study of Search Engines queries by Médiamétrie & Sépage for creative and cultural industries, Roland Berger analysis
Cultural content generates other value creation upsides, particularly through market share and brand image reinforcement

Cultural content role in implicit and collateral value creation – Search engines

<table>
<thead>
<tr>
<th>Value creation drivers</th>
<th>Key Success Factors</th>
<th>Cultural content impact</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market capitalization</td>
<td>Ubiquity for users and advertisers</td>
<td>3</td>
<td>It is key for search engines to provide the most exhaustive and relevant content in their answers and results to users</td>
</tr>
<tr>
<td>Market share</td>
<td>Thoroughness/ Relevance</td>
<td>3</td>
<td>Cultural content (~30% of search) highly contributes to a good performance as compared to competitors’</td>
</tr>
<tr>
<td>Share of wallet</td>
<td>Ubiquity for advertisers</td>
<td>3</td>
<td>This performance then improves brand image, increase market share and thus drive market capitalization</td>
</tr>
<tr>
<td>Brand image</td>
<td>Customer stickiness</td>
<td>3</td>
<td>Users’ online behaviors relating cultural content contributes to helping search engines analyze users’ profiles and needs</td>
</tr>
<tr>
<td>Better understanding</td>
<td>Thoroughness/ Relevance</td>
<td>3</td>
<td>Then search engines can improve content thoroughness/relevance accordingly</td>
</tr>
<tr>
<td>of users and needs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer data monetization</td>
<td>Customer targeting</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Machine learning</td>
<td>Customer stickiness</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Collateral

Direct value creation on sites embedding content from public cloud services

→ Very high contribution but no barriers to entry

Source: Roland Berger analysis
Implicit value creation allows Google to maintain its near-monopoly situation, despite low switching costs for users and advertisers.

Search engines market shares [Europe; 2014; # of users]

Google: 96%
Yahoo: 2%
Bing: 3%
Others: 0%

Search engine model key insights

- Long term resilience
- Standard services provided to users from one engine to another
- Low switching costs for users and advertisers

Key stake for Google

Near-monopoly situation

Implicit value creation

Source: Statista, Roland Berger
4.2 Content aggregators
Content aggregators are made of publisher-based content interface, redirection platforms and P2P portals

Technical intermediaries description – Content aggregators

Who are they?

Publisher-based content interface
- **iHeart RADIO**
- **tunein**

Redirection platforms
- **bop**
- **tracks**
- **stream.it**
- **HYPER MACHINE**

Illegal – P2P portals and Redirection platforms
- **Tidal**
- **The Union Box**
- **iP pulpstreaming**

Why are they important?

> Websites revenue model directly linked to cultural content distribution => Indexation of musical and video content from hosting websites or editors websites
> Publisher-based content interfaces and Redirection platforms benefit from cultural content hosted on legal platforms with no compensation to right holders
> P2P portals and Redirection platforms benefit from cultural content often shared illegally, with no compensation to right holders

How do they generate revenue?

Main revenue generation approach
- Display ads

Main revenue generation levers
- Available inventory
- Valuation of the inventory

Source: European Technographics online benchmark survey, 2013, Roland Berger analysis
Cultural content contributed ~85% to the 2014 online music aggregation service market (i.e. EUR 85 m)

Europe – Extrapolation of Tunein analysis on the online aggregation music service market

Methodology – Volume market share

> European content aggregators revenue impact by directly and indirectly cultural content has been estimated based on Tunein revenue.

> Tunein market share is assumed of 20% on online music aggregators in 2014, having a leading position in a however fragmented market.

Results

\[ \sum = \text{EUR } 20 \text{ m} \]

20% of the market

<table>
<thead>
<tr>
<th>15 (75%)</th>
<th>3 (15%)</th>
<th>2 (10%)</th>
</tr>
</thead>
</table>

Total impact = EUR 17 m

Europe

\[ \sum = \text{EUR } 100 \text{ m} \]

100% of the market

<table>
<thead>
<tr>
<th>75 (75%)</th>
<th>15 (15%)</th>
<th>10 (10%)</th>
</tr>
</thead>
</table>

Total impact = EUR 85 m

Source: Roland Berger analysis
Publisher-based content interface and redirectors are highly comparable, but strongly differ from P2P and rip-based redirection platforms.

Content aggregators

P2P portals and rip-based redirection platforms: General Overview

- **P2P portals** generate more revenue (through advertising) than the other "rip-based" segments, as they represent 2/3 of "rip-based" content aggregators revenue.
- **Low barriers to entry** for redirection platforms results in a multitude of small sites (40% of redirection platforms).
- **Redirection platforms** accounts for 1/3 of "rip-based" content aggregators revenue.
- Despite P2P portals and redirection platforms’ notoriety as sources of illegally shared content, **premium brand ads** frequently appear on these websites (13% on large portals, 29% of large redirection platforms).

**A** Publisher-based content interface and Redirection platforms:

- **Tunein** chosen as the main benchmark for the categories.
- **World’s largest audio network** with over 100,000 real radio stations and four million on-demand programs and podcasts.
- **Partnerships with broadcasters** to offer cultural content to listeners (CBS, NPR, …).
- **Free website and application**.
- Revenue model based on **display advertising**.
- Raised **over USD 47 m in venture funding** in 2012 and 2013.

Cultural content (radio/music for Tunein) is at the heart of Publisher-based content interface and Redirection platforms value proposition

Content role in Content aggregators business model

### Revenue model

<table>
<thead>
<tr>
<th>Display advertising revenue</th>
<th>CPM(^1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effective inventory</td>
<td></td>
</tr>
<tr>
<td># users</td>
<td></td>
</tr>
<tr>
<td># screens / screen view</td>
<td></td>
</tr>
<tr>
<td># connections / user</td>
<td></td>
</tr>
<tr>
<td># screen views / connection</td>
<td></td>
</tr>
</tbody>
</table>

### Key Success Factors

- **Customer stickiness**
- **Content range**
- **Usage quality**
- **Content range**
- **Ads format**
- **Fill rate**
- **Customer targeting**

### Qualitative estimate of the role of content

- **HIGH** Cultural content contributes to overall content thoroughness
- **HIGH** Content availability and uniqueness impact directly customer perception on the offer and increase stickiness
- **LOW** Cultural content does not have a direct impact on ads format, fill rate and customer targeting

1) Cost Per Mille: price paid by advertisers for 1000 ads

Source: Roland Berger analysis
With ~EUR 20 m revenue in 2014, Europe accounts for one third of Tunein global revenue.

General key metrics – Revenue [World; EUR m]

<table>
<thead>
<tr>
<th>Year</th>
<th>Europe</th>
<th>Rest of World</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>16 (33%)</td>
<td>32 (67%)</td>
</tr>
<tr>
<td>2013</td>
<td>17 (33%)</td>
<td>35 (67%)</td>
</tr>
<tr>
<td>2014</td>
<td>20 (33%)</td>
<td>40 (67%)</td>
</tr>
</tbody>
</table>

12% p.a.

Source: Tunein corporate website, press, Roland Berger analysis
Tunein revenue in Europe grew by 12% p.a. over 2012-2014 – Royalties amount to about 48% of revenue in 2014

Financial key metrics

**Europe**\(^1\) revenue [2014; EUR m]

<table>
<thead>
<tr>
<th>Year</th>
<th>Revenue (EUR m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>16</td>
</tr>
<tr>
<td>2013</td>
<td>17</td>
</tr>
<tr>
<td>2014</td>
<td>20</td>
</tr>
</tbody>
</table>

12% p.a.

**Key metrics** [Global; 2014]

- Royalties: ~48%
- Gross Margin: ~52%

\(^1\) Europe: proxy based on press review

Source: Tunein corporate website, press, Roland Berger analysis
Tunein monthly active user base in Europe increased at a 12% p.a. over 2012-2014, reaching 17 m monthly active users

**Customer metrics**

**Number of monthly active users [World; m users]**

<table>
<thead>
<tr>
<th>Year</th>
<th>Europe</th>
<th>Rest of World</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>40</td>
<td>27</td>
</tr>
<tr>
<td>2013</td>
<td>45</td>
<td>30</td>
</tr>
<tr>
<td>2014</td>
<td>50</td>
<td>33</td>
</tr>
</tbody>
</table>

12% CAGR:
- +11.8%

**Other key figures [2014]**

- **100 000** live radio stations broadcasted worldwide
- **4 m** podcasts streaming worldwide
- **5.5 bn** hours of online radio listened in Europe per year
- **230** countries and territories worldwide

1) Europe: proxy based on press review

Source: Tunein corporate website, press, Roland Berger analysis
Cultural content has 85% impact on Tunein revenue, mostly due to a strong direct impact of broadcast cultural content

Synthesis of cultural content impact on overall value creation

| A.1 | Direct impact on revenue [EUR m] | 15 | 75% | > News & music played on the radio represent ~75% of broadcasted content and contributes directly to Tunein’s revenue |
| A.2 | Indirect impact on revenue [EUR m] | 2  | 10% | > Traffic and usage are driven by the attractiveness of the radio offer, i.e. mostly news and music  
> Cultural content drives 85% of customers' ubiquity and adherence |
| Total impact for Tunein | 17 | 85% | > Overall, cultural content contributes to both the majority of broadcasted content and users adherence and stickiness to the website  
> The almost entire business model and value creation of Tunein depends directly or indirectly of cultural content, i.e. 85% of revenue |
| A.3 | Implicit value-creation levers | NA | NA | > Cultural content large range and variety contributes to adherence of users to content aggregators and therefore to market share and brand image among others |

Source: Tunein corporate website, press, Roland Berger analysis
TuneIn being a radio aggregator, audio cultural content is at the heart of its direct revenue generation…

Calculation of the cultural content direct impact on revenue

A.1 Direct impact – average share of cultural content on radio stations

- Music & News: 75%
- Other content: 25% (Sports, Weather reports, Horoscopes, …)

Direct impact = 75%

Impact on TuneIn revenue:

Revenue: 20

Impact:

5 (25%)

15 (75%)

1) Based on press review data

Source: TuneIn corporate website, press, Roland Berger analysis
… as well as its indirect revenue generation, as Music and News drive strong ubiquity and adherence

Calculation of the cultural content indirect impact on revenue

A.2 Indirect impact – contribution to ubiquity and adherence

High contribution of cultural content to ubiquity and adherence: the absence of cultural content would cut out Tunein purpose and strongly affect its revenue

<table>
<thead>
<tr>
<th>Content Type</th>
<th>Music &amp; News</th>
<th>Other Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contribution to user adherence</td>
<td>85%</td>
<td>15%</td>
</tr>
<tr>
<td>Broadcasted content</td>
<td>75%</td>
<td>25%</td>
</tr>
</tbody>
</table>

Rationale – Illustration of audience and offers

- Share of weekdays audience per type of radio
  - Musical Radios: 31%
  - General Radios: 43%
  - Local Radios: 15%
  - Thematic Radios: 8%
  - of which RMC / BFM ~7%
  - of which France Info ~3%

- "Pure talk" / information radios represent only 10-15% of audience
- In 2015, <15% of auditors are exclusive to one radio station

- Example of SiriusXM free and subscription-based offers
  - SiriusXM: satellite radio aggregating radios to listen to in the car, or on computers, smartphones and tablets

Free trial – 60 channels
- Family: 2%
- Sports: 7%
- Entertainment: 5%
- News: 7%
- Music & others: 80%
- Other: 15%

Subscription based
- Family: 0%
- Sports: 6%
- Entertainment: 13%
- News: 9%
- Music & others: 87%
- Other: 6%

Non "cultural content centric" radios represent 10-15% of the offer

Source: Tunein corporate website, press, Mediamétrie Study Q1 2015, Roland Berger analysis
Cultural content has an overall impact of EUR 17 m on Tunein revenue in Europe [EUR 15 m direct and EUR 2 m indirect]

Calculation of the cultural content direct and indirect impact on revenue

**A.1 Direct impact**

- % of cultural content broadcasted = 75%
- Revenue: EUR 15 m (75%)

**A.2 Indirect impact**

- % of ubiquity and adherence linked to cultural content = 85%
- Indirect impact = [85% - 75%] = 10%
- Revenue: EUR 2 m (10%)

**Total impact**

- Remaining revenue indirect impact: EUR 2 m (10%)
- Direct impact: EUR 15 m (75%)
- Total revenue: EUR 17 m (85%)

Source: Tunein corporate website, press, Roland Berger analysis
Cultural content plays a major role in content aggregators business models, mainly driven by market share – oligopolistic paradigm

Cultural content role in implicit and collateral value creation – Content aggregators

<table>
<thead>
<tr>
<th>Value creation drivers</th>
<th>Key Success Factors</th>
<th>Cultural content impact</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market capitalization</td>
<td>Customer stickiness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market share</td>
<td>Content range</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share of wallet</td>
<td>Content range  Usage quality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brand image</td>
<td>Content range  Usage quality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Better understanding of users and needs</td>
<td>Content variety</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer data monetization</td>
<td>Customer targeting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Machine learning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct value creation on sites</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>embedding content from public cloud services</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

→ High contribution: core business of Tunein

Source: Roland Berger analysis
4.2 Detail of players economic models – Content aggregators – P2P portals and "rip-based" content redirection platforms

Illegal streaming platforms and P2P portals have an ad-based revenue model combining display, sponsored links and action

Content role in Content aggregators business model

Revenue model

<table>
<thead>
<tr>
<th>Key Success Factors</th>
<th>Qualitative estimate of the role of content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content range</td>
<td>Cultural content contributes to overall content thoroughness and thus it impacts directly customer perception on the offer</td>
</tr>
<tr>
<td>Content quality</td>
<td>HIGH</td>
</tr>
<tr>
<td>Usage quality</td>
<td>LOW</td>
</tr>
<tr>
<td>Ubiquity for advertisers</td>
<td>LOW</td>
</tr>
<tr>
<td>Customer targeting</td>
<td>LOW</td>
</tr>
<tr>
<td>Content range</td>
<td>Cultural content does not have a direct impact on ubiquity for advertisers and customer targeting</td>
</tr>
<tr>
<td>Content quality</td>
<td>HIGH</td>
</tr>
<tr>
<td>Usage quality</td>
<td>LOW</td>
</tr>
<tr>
<td>Ubiquity for advertisers</td>
<td>LOW</td>
</tr>
<tr>
<td>Customer targeting</td>
<td>LOW</td>
</tr>
<tr>
<td>Content range</td>
<td>Cultural content does not have a direct impact on ubiquity for advertisers, ads relevance and customer advertising</td>
</tr>
<tr>
<td>Content quality</td>
<td>HIGH</td>
</tr>
<tr>
<td>Usage quality</td>
<td>LOW</td>
</tr>
<tr>
<td>Ubiquity for advertisers</td>
<td>LOW</td>
</tr>
<tr>
<td>Customer targeting</td>
<td>LOW</td>
</tr>
</tbody>
</table>

1) Cost per Mille: price paid per thousand advertising impressions 2) Cost Per Click: price paid by advertiser per sponsored link clicked by user 3) Click Through Rate: number of click per sponsored link 4) Average number of sponsored links per search 5) Cost per Action: price paid by advertisers for each specified action

Source: Roland Berger analysis
P2P content aggregators and "rip-based" content redirection platforms represent EUR 23 m revenue, concentrated on P2P.

Focus on P2P portals and redirection platforms.

**Total revenue per segment**
([Europe; 2013; EUR])

<table>
<thead>
<tr>
<th>Segment</th>
<th>Number</th>
<th>Revenue per segment</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2P portals</td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>Redirection platforms</td>
<td></td>
<td>8</td>
</tr>
</tbody>
</table>

**Distribution of global revenue**
([EUR m])

- **Large** (8%)
  - # of sites: 100
  - Revenue per category: 8%

- **Medium** (23%)
  - # of sites: 100
  - Revenue per category: 23%

- **Small** (69%)
  - # of sites: 100
  - Revenue per category: 63%

- **Small** (8%)
  - # of sites: 100
  - Revenue per category: 26%

- **Small** (12%)
  - # of sites: 100
  - Revenue per category: 12%

**100% of cultural content**

**100% of revenue linked to cultural content**

85% Average operating margin in 2013

---

Source: Digital Citizens Piracy report, Roland Berger analysis
Cultural content on P2P portals and "rip-based" content redirection platforms could have generated EUR 1.9 bn of value in 2013

Assessment of potential value creation by illegal content aggregators [2013]

Present situation

Assumptions

Potential of value generation

Revenue

Annual rights gathered
EUR 0 m

> 25% discount on Netflix's rights payment benchmark

> 55 m of users in Europe in 2014

75% of Netflix cost of content acq. / user [EUR]

# users [millions]

55 x 34.3

Value that could have been generated EUR ~1 900 m

Source: Digital Citizens Piracy report, Roland Berger analysis
4.3 Social networks
Social networks in Europe are in an oligopolistic situation, with vertical specialists (social, professional, information, photography, etc.)

Technical intermediaries description – Social networks

Who are they?

Facebook, Instagram, Pinterest, flickr, Skyrock, twitter, viadeo, studiVZ, tumblr, Blogger

Why are they important?

> Personal / public content sharing with the public or the private sphere
> Displaying content from various sources:
  - User generated content
  - Embedded content from public clouds companies

How do they generate revenue?

Main revenue generation approach
> Native advertising
> Sponsored links
> Display ads

Main revenue generation levers
> Available inventory
> Valuation of the inventory

Penetration of leading social networks [Europe; 2013; % of respondents]

Facebook: 58%
Google+: 22%
Twitter: 13%

Source: European Technographics online benchmark survey, 2013, Roland Berger analysis
Cultural content contributed ~70% to the 2014 European social network market (i.e. EUR 2 bn), out of which ~43% directly

Europe – Extrapolation of Facebook analysis on the social network market

Methodology – Value market share

> European social network revenue coming directly and indirectly from cultural content was analyzed based on Facebook advertising revenue and share of social network ad spending (in value)

> Social network ad spending\(^1\) totaled EUR 3.2 bn in Europe in 2014

> Hence, with advertising revenue of EUR 2.5 bn, Facebook share in value amounted to ~78% in 2014

> In comparison, Twitter share in value amounted to ~8% in 2014, which is consistent with penetration figures in Europe

1) Excluding professional social networks (LinkedIn and Viadeo)

Source: eMarketer, Press, Roland Berger analysis
**专业网络收入模型 – LinkedIn & Viadeo**

Cultural content does not directly contribute to Professional networks revenue, though driving adherence to a very small extent.

### Professional network revenue model – LinkedIn & Viadeo

#### Revenue per segment [Global; EUR m]

<table>
<thead>
<tr>
<th>Segment Description</th>
<th>LinkedIn</th>
<th>Viadeo</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2012</td>
<td>2013</td>
</tr>
<tr>
<td></td>
<td>148</td>
<td>183</td>
</tr>
<tr>
<td></td>
<td>756</td>
<td>1155</td>
</tr>
<tr>
<td></td>
<td>183</td>
<td>232</td>
</tr>
<tr>
<td></td>
<td>425</td>
<td>236</td>
</tr>
</tbody>
</table>

### Impact of cultural content on revenue

- LinkedIn and Viadeo revenue are not directly linked to cultural content.
- Customer adherence can indirectly be linked to a small extent to the presence of news in the feed.

### Source:
LinkedIn, Viadeo, Roland Berger analysis
Focus is on two leading social network examples: Facebook and Twitter

Social networks – Overview of main players

**A Facebook**
- Global leader in online social network services
- Displays various types of content (photo, video, music, press, etc.)
- The share of cultural content is estimated at 51% of total content in 2015 and mainly consists in videogames, music and visual art
- Revenue model is primarily based on advertising: native and display
- Cultural content has both direct and indirect impact on Facebook revenue – other value creation levers exist

**B Twitter**
- Global leading social network based on short messages
- Displays various types of content (photo, video, music, press, etc.)
- The share of cultural content is estimated at 75% of total content in 2015 and mainly consists in embedded content from music/video platforms as well as in artists photographs and paintings, etc.
- Revenue model is primarily based on advertising related to promoted tweets, accounts and trends
- Cultural content has both direct and indirect impact on Twitter revenue – other value creation levers exist

Facebook and Twitter KPIs can be used when necessary as proxies for non-documented platforms

Source: Roland Berger analysis
Contents may be seen as "fuel" for Social networks thus significantly contributing to revenue generation

Content role in Social network business model

<table>
<thead>
<tr>
<th>Revenue model</th>
<th>Key Success Factors</th>
<th>Qualitative estimate of the role of content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Native advertising revenue</td>
<td>Customer stickiness</td>
<td>Cultural content has a strong direct impact on customer stickiness</td>
</tr>
<tr>
<td>Display advertising revenue</td>
<td>Virality (Tribe effect)</td>
<td>Cultural content contributes to overall content quality and thus fuels virality</td>
</tr>
<tr>
<td>Effective inventory</td>
<td>Ads format</td>
<td>Cultural content does not have a direct impact on ads format and fill rate</td>
</tr>
<tr>
<td>Ad space / scroll length</td>
<td>Fill rate</td>
<td></td>
</tr>
<tr>
<td>Users scroll length</td>
<td>Customer targeting Competition (RTB) Ubiquity for advertisers</td>
<td></td>
</tr>
<tr>
<td># users</td>
<td></td>
<td></td>
</tr>
<tr>
<td># visits / user</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scroll length / visit</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

KSF also drive indirect (market capitalization, brand image, …) and implicit (machine learning, users understanding, …) value creation

Users' online behaviors with respect to cultural content
> provide information regarding their tastes
> contribute to develop their consumption profiles
> enable monetization through targeted advertising solutions

1) Cost Per Mille: price paid by advertisers for 1000 ads

Source: Roland Berger analysis
With ~EUR 2 660 m revenue (28% of its global revenue), Facebook is by far the leading social network in Europe.

General key metrics – Revenue [World; EUR m]

<table>
<thead>
<tr>
<th>Year</th>
<th>Europe</th>
<th>Rest of World</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>2 832</td>
<td>1 132</td>
<td>3 964</td>
</tr>
<tr>
<td>2013</td>
<td>4 293</td>
<td>1 658</td>
<td>5 950</td>
</tr>
<tr>
<td>2014</td>
<td>7 100</td>
<td>2 658</td>
<td>9 758</td>
</tr>
</tbody>
</table>

57% p.a.

1) Europe: proxy

Source: Facebook annual reports, Roland Berger analysis
Facebook revenue in Europe grew by 56% p.a. over 2012-2014, mainly driven by native advertising (77% of 2014 revenue)

Financial key metrics

Revenue and EBITDA [Europe\(^1\); EUR m]

<table>
<thead>
<tr>
<th>Year</th>
<th>Revenues</th>
<th>Display advertising</th>
<th>Payment &amp; other fees</th>
<th>EBITDA margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>1 132</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>1 658</td>
<td></td>
<td></td>
<td>207</td>
</tr>
<tr>
<td>2014</td>
<td>2 658</td>
<td>392</td>
<td>48%</td>
<td>2 059</td>
</tr>
</tbody>
</table>

Advertising revenue 2014 = EUR 2 450 m

Revenue distribution [2014]

- Other media: ~32%
- Mobile: ~68%

> Facebook revenue grew by 53% p.a. over 2012-2014
> In 2014, Facebook EBITDA margin stood at 50% of revenue
> Native advertising accounted for 77% of Facebook 2014 revenue

Source: Facebook annual reports, Roland Berger analysis
Facebook monthly active user base in Europe steadily increased at a 7% yearly rate over 2012-2014, reaching 300 millions in 2014.

**Customer metrics**

**Number of monthly active users [World; million]**

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td>1,056</td>
<td>1,228</td>
<td>1,393</td>
</tr>
<tr>
<td>Rest of World</td>
<td>260</td>
<td>280</td>
<td>300</td>
</tr>
</tbody>
</table>

**12-14 CAGR:**

- Europe: +7.4%
- Rest of World: +17.2%

**Other key figures [2014]**

- **212 m** daily active users on average in Europe (vs. 890m worldwide)
- **1 bn** daily search requests on average worldwide
- **2 m** active advertisers worldwide

Source: Facebook, press, Roland Berger analysis

---

1) Europe: proxy
Cultural content has a strong impact on Facebook total revenue (~70%), mostly due to the high share of cultural content shared/published.

### Synthesis of cultural content impact on overall value creation

<table>
<thead>
<tr>
<th></th>
<th>Revenue generated from cultural content [EUR m]</th>
<th>Share of total revenue</th>
<th>Comments &amp; rationale</th>
</tr>
</thead>
</table>
| **A.1 Direct impact on revenue** | 1040                                          | 43%                    | > Overall, 43% of content shared on Facebook is cultural content (Music, TV, cinema, radio, video games, etc.) – 52% for country A and 33% for country B  
|                                |                                               |                        | > Native advertising is 100% impacted by content whereas display advertising is not significantly impacted as it is not influenced by feed length |
| **A.2 Indirect impact on revenue** | 675                                           | 28%                    | > Without cultural content, Facebook would lose stickiness, leading to an indirect loss of 28% of total action performed  
|                                |                                               |                        | > Indirect impact is the average of 24% for country A and 31% for country B |
| **Total impact for Facebook**   | 1715                                          | 70%                    | > Although it is not Facebook core function, sharing cultural content has become essential for users and highly contributes, directly or indirectly to Facebook revenue as well as to other value creation mechanisms |
| **A.3 Implicit value-creation levers** | High                                         |                        | > Sharing and consuming cultural content contributes to the users experience of Facebook as a social media  
|                                |                                               |                        | > The type of content shared enables Facebook to better understand users needs as well as monetizing their profile |

Source: Facebook, press, Roland Berger analysis
Figures come from 2 studies perform in 2 European countries in 2015

Methodology

1. Direct and indirect impacts were estimated by the same methodology in each country

2. European estimation is based on the average of impact between these 2 countries
An average of 62% of a user's scrolled news feed is made of cultural content

Calculation of the cultural content direct impact on revenue

Share of cultural content in posted/shared on Facebook's newsfeed [2015]

<table>
<thead>
<tr>
<th>Social</th>
<th>Access to cultural content</th>
<th>Press culture</th>
<th>Press others</th>
<th>Other themes (Other social and personal content)</th>
<th>Cultural content = 62%</th>
</tr>
</thead>
<tbody>
<tr>
<td>11%</td>
<td>22%</td>
<td>17%</td>
<td>12%</td>
<td>38%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Direct revenues</th>
<th>Other contents = 38%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&gt; Core cultural content includes: Music, TV, cinema, internet video, radio, book, video games, visual arts, advertising, ...</td>
</tr>
<tr>
<td></td>
<td>&gt; Other cultural content includes: Press about sport, fashion, holidays, health, etc.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Distribution of content posted1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video games</td>
</tr>
<tr>
<td>11%</td>
</tr>
</tbody>
</table>

1) Not exclusive (not equivalent to 100%)
2) Pure UGC i.e. without any copyrighted or protected content

Source: Corporate website, Declarative study of Facebook usage in Italy during week 4 of August 2015 by Ipsos for Italian creative and cultural industries, Roland Berger analysis
52% of Facebook's native advertising revenue is directly related to cultural content

Calculation of the cultural content direct impact on revenue

<table>
<thead>
<tr>
<th>Total advertising revenue¹)</th>
<th>Cultural content factor</th>
<th>Cultural content direct impact on revenue [County A; 2014; EUR m]</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Country A; 2014; EUR m]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Native advertising</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>% of cultural content in news feed = 62%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Directly correlated to available inventory for Native ads</td>
<td>84%</td>
<td>(52%)</td>
</tr>
<tr>
<td>Display advertising</td>
<td>16%</td>
<td>(16%)</td>
</tr>
<tr>
<td>No significant direct impact²)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Revenue</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-cultural content related</td>
<td>(32%)</td>
</tr>
<tr>
<td>Cultural content related</td>
<td>(52%)</td>
</tr>
<tr>
<td>Display advertising</td>
<td>(16%)</td>
</tr>
</tbody>
</table>

Note: 1) Proxy on revenue split in 2014  
2) 0% impact of display advertising vs. 100% for native: less frequency of appearance during a visit + no visibility on mobile

Source: Corporate website, Declarative study of Facebook usage during week 4 of march 2015 by Ipsos for creative and cultural industries, Roland Berger analysis
Without cultural content, Facebook would lose stickiness, leading to an indirect loss of 24% of total actions performed.

Calculation of the cultural content indirect impact on revenue

<table>
<thead>
<tr>
<th>Number of cultural actions per week</th>
<th>Share of total users</th>
<th>Average # of action per user</th>
<th>Assumptions</th>
<th>Average # of action per user</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low number of cultural actions</td>
<td>51%</td>
<td>7</td>
<td>Without culture: all users at the same level as &quot;low cultural content consumers&quot; = 27 non-cultural actions performed / users per week</td>
<td>27</td>
</tr>
<tr>
<td>(0 to 22 cultural actions / week)</td>
<td></td>
<td>34</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>27</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High number of cultural actions</td>
<td>49%</td>
<td>135</td>
<td></td>
<td>27</td>
</tr>
<tr>
<td>(More than 23 cultural actions / week)</td>
<td></td>
<td>225</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average number of action per user / week = 194</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Corporate website, Declarative study of Facebook usage during week 4 of March 2015 by Ipsos for creative and cultural industries, Roland Berger analysis
An average of 39% of a user's scrolled news feed is made of cultural content

Calculation of the cultural content direct impact on revenue

Share of cultural content in posted/shared on Facebook's newsfeed [2014]

<table>
<thead>
<tr>
<th>Social</th>
<th>16%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to cultural content</td>
<td>12%</td>
</tr>
<tr>
<td>Others (blogs)</td>
<td>4%</td>
</tr>
<tr>
<td>Press culture</td>
<td>6%</td>
</tr>
<tr>
<td>Press others</td>
<td></td>
</tr>
<tr>
<td>Other themes</td>
<td>61%</td>
</tr>
</tbody>
</table>

Cultural content = 39%

Other contents = 61%

> Core cultural content includes: Music, TV, cinema, internet video, radio, book, video games, visual arts, advertising, ...
> Other cultural content includes: Press about sport, fashion, holidays, health, etc.

Distribution of content posted

<table>
<thead>
<tr>
<th>Video games</th>
<th>Internet video</th>
<th>Music</th>
<th>Visual arts</th>
<th>Advertising</th>
<th>Cinéma</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>36%</td>
<td>10%</td>
<td>9%</td>
<td>8%</td>
<td>6%</td>
<td>7%</td>
<td>24%</td>
</tr>
</tbody>
</table>

> Other contents includes: personal pictures, inspirational content (quotes, ..), UGC content (home videos, ...)², events, ...

1) Not exclusive (not equivalent to 100%)
2) Pure UGC i.e. without any third party content

Source: Corporate website, Declarative study of Facebook usage during week 4 of March 2015 by Ipsos for creative and cultural industries, Roland Berger analysis
33% of Facebook's native advertising revenue is directly related to cultural content

Calculation of the cultural content direct impact on revenue

<table>
<thead>
<tr>
<th>Total advertising revenue</th>
<th>Cultural content factor</th>
<th>Cultural content direct impact on revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Native advertising</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Display advertising</td>
<td>16%</td>
<td>16%</td>
</tr>
</tbody>
</table>

% of cultural content in news feed = 39%

Directly correlated to available inventory for Native ads

No significant direct impact

Note: 1) Proxy on revenue split in 2014  
2) 0% impact of display advertising vs. 100% for native: less frequency of appearance during a visit + no visibility on mobile

Source: Corporate website, Declarative study of Facebook usage during week 4 of March 2015 by Ipsos for creative and cultural industries, Roland Berger analysis
Without cultural content, Facebook would lose stickiness, leading to an indirect loss of 31% of total action performed.

### Calculation of the cultural content indirect impact on revenue

<table>
<thead>
<tr>
<th>Number of cultural actions per week</th>
<th>Share of total users</th>
<th>Average # of action per user</th>
<th>Assumptions</th>
<th>Average # of action per user</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low number of cultural actions (0 to 8 cultural actions / week)</td>
<td>50%</td>
<td>21</td>
<td>Without culture: all users at the same level as &quot;low cultural content consumers&quot; = 18 non-cultural actions performed / users per week</td>
<td>18</td>
</tr>
<tr>
<td>High number of cultural actions (More than 9 cultural actions / week)</td>
<td>50%</td>
<td>51</td>
<td>= 18 non-cultural actions performed / users per week</td>
<td>18</td>
</tr>
<tr>
<td>Average number of action per user / week = 60</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Corporate website, Declarative study of Facebook usage during week 4 of March 2015 by Ipsos for creative and cultural industries, Roland Berger analysis.
Cultural content could have an overall impact of EUR ~1 715 m on Facebook revenue in Europe.

**Calculation of the cultural content direct and indirect impact on ad revenue**

**A.1 Direct impact**
- Native advertising: Revenue = EUR 2 058 (43%)
- Display advertising: Revenue = EUR 392

- % of cultural content broadcasted = 51%

**A.2 Indirect impact**
- % of cultural ubiquity and adherence linked to cultural content = 28%
- Non-culture related: Revenue = EUR 1 040 (43%)
- Indirect impact: Revenue = EUR 675 (28%)

**Total impact**

- EUR 1 040 m (43%)
- EUR 675 m (28%)
- = EUR 1 715 m (70%)

Source: Corporate website, Declarative study of Facebook usage by Ipsos for European creative and cultural industries, Roland Berger analysis.
Cultural content helps social networks understanding their users expectations and thus better monetize their consumption profiles.

Cultural content role in implicit and collateral value creation – Social networks

<table>
<thead>
<tr>
<th>Value creation drivers</th>
<th>Key Success Factors</th>
<th>Cultural content impact</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market capitalization</td>
<td>Customer stickiness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market share</td>
<td>Virality – Tribe effect</td>
<td></td>
<td>&gt; By nature, Facebook enables users to share cultural content in a viral way through the &quot;like&quot; or &quot;share&quot; features</td>
</tr>
<tr>
<td>Share of wallet</td>
<td>Ubiquity for advertisers</td>
<td></td>
<td>&gt; Sharing and consuming cultural content directly contributes to the users experience of Facebook as a social media</td>
</tr>
<tr>
<td>Brand image</td>
<td>Customer stickiness</td>
<td></td>
<td>&gt; Thus, cultural content contributes to increase Facebook users' stickiness</td>
</tr>
<tr>
<td>Better understanding of users and needs</td>
<td>Content range</td>
<td></td>
<td>&gt; When cultural content is shared, liked or even only commented by users, Facebook gathers and analyze data that will enable to understand users' tastes and needs, develop their consumption profiles and then monetize them through targeted advertising solutions</td>
</tr>
<tr>
<td>Customer data monetization</td>
<td>Customer targeting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Machine learning</td>
<td>Customer stickiness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct value creation on sites embedding content from public cloud services</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Roland Berger analysis
Contents may be seen as "fuel" for Twitter thus significantly contributing to revenue generation

Content role in Social network business model

Revenue model

<table>
<thead>
<tr>
<th>Effective inventory</th>
<th>Ad space / scroll length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue =</td>
<td></td>
</tr>
<tr>
<td>CPM$^1$</td>
<td></td>
</tr>
</tbody>
</table>

Key Success Factors

- Customer stickiness
- Virality (Tribe effect)
- Ads format
- Fill rate
- Customer targeting
- Competition (RTB)
- Ubiquity for advertisers

Qualitative estimate of the role of content

- Cultural content contributes to overall content quality and fuels both customer stickiness and content virality
- Cultural content does not have a direct impact on ads format and fill rate
- Users' online behaviors with respect to cultural content regarding their tastes contribute to develop their consumption profiles and enable monetization through targeted advertising solutions

$^1$ Cost Per Mille: price paid by advertisers for 1000 ads

Source: Roland Berger analysis
With ~EUR 265 m revenue in 2014 (vs. EUR 64 m in 2012), Twitter has been a particularly fast-growing social network since 2012.

General key metrics – Revenue [World; EUR m]

- 2014: 1098 EUR m (111% p.a.)
- 2013: 503 EUR m
- 2012: 247 EUR m

Source: Twitter annual reports, press, Roland Berger

1) Europe: proxy
Twitter revenue in Europe grew by 104% p.a. over 2012-2014, mainly driven by advertising (90% of 2014 revenue)

Financial key metrics

Revenue and EBITDA [Europe\(^1\)]; EUR m

Twitter revenue grew by 104% p.a. over 2012-2014

In 2014, Twitter EBITDA margin stood at 21.5% of revenue vs. 6.6% in 2012 (+15 pt.)

2014 revenue was almost exclusively generated through advertising (90%)

Source: Twitter annual reports, press, Roland Berger

\(^1\) Europe: proxy
Twitter monthly active user base strongly increased at a 25% yearly rate over 2012-2014, reaching 69 m monthly active users in Europe

Customer metrics

<table>
<thead>
<tr>
<th>Year</th>
<th>Europe</th>
<th>Rest of World</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>137</td>
<td>48</td>
<td>185</td>
</tr>
<tr>
<td>2013</td>
<td>180</td>
<td>61</td>
<td>241</td>
</tr>
<tr>
<td>2014</td>
<td>219</td>
<td>69</td>
<td>288</td>
</tr>
</tbody>
</table>

Number of monthly active users [World; m]

Other key figures [2014]

- 40% of monthly active users worldwide are posting tweets
- 26 m users follow YouTube – Most followed brand worldwide
- 89% of French +15-year old population has heard of Twitter
- 11% only have had an account
- 5% only were actively engaged on the site

Source: Twitter annual reports, press, Roland Berger
Cultural content has high impact on Twitter total revenue (70%) – Both direct and indirect impact

Synthesis of cultural content impact on overall value creation

<table>
<thead>
<tr>
<th>Revenue generated from cultural content</th>
<th>Share of total revenue</th>
<th>Comments &amp; rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A.1</strong> Direct impact on revenue [EUR m]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>179</td>
<td>68%</td>
<td>&gt; Cultural content shared on Twitter represents 75% of total Tweets shared, directly impacting Twitter revenues from advertising</td>
</tr>
<tr>
<td><strong>A.2</strong> Indirect impact on revenue [EUR m]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>2%</td>
<td>&gt; Based on Facebook case, it's assumed that Twitter would lose a total of 70% of stickiness without cultural content, leading to an indirect loss of 2% of tweets</td>
</tr>
<tr>
<td><strong>Total impact for Twitter</strong></td>
<td><strong>186</strong></td>
<td><strong>70%</strong></td>
</tr>
</tbody>
</table>

> Culture has a significant role in Twitter's direct and indirect revenues (70%), mostly through direct impact, as 75% of Tweets shared could concern cultural content

> Sharing and consuming cultural content directly contributes to the users experience of Twitter as a social media and therefore strongly enhance Twitter's major role in consumer habits online

> The important range of content shared significantly enable Twitter to better understand users and their needs as well as monetize their data (profile and trends)

Source: Roland Berger analysis
Twitter's timelines are composed of an average of 75% of cultural content

Cultural key metrics

Share of cultural content on Twitter [estimates; 2015]

Source: Roland Berger analysis
68% of Twitter's revenue is directly related to cultural content, mainly through external content embedding features.

Calculation of the cultural content direct impact on revenue

<table>
<thead>
<tr>
<th>Total revenue [Europe¹; 2014; EUR m]</th>
<th>Cultural content factor</th>
<th>Cultural content direct impact on revenue [Europe¹; 2014; EUR m]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>265</td>
</tr>
<tr>
<td>Data licensing &amp; other revenues</td>
<td></td>
<td>26</td>
</tr>
<tr>
<td>Advertising</td>
<td></td>
<td>238</td>
</tr>
<tr>
<td>&gt; Promoted tweets</td>
<td></td>
<td>26 (10%)</td>
</tr>
<tr>
<td>&gt; Promoted accounts</td>
<td></td>
<td>179 (68%)</td>
</tr>
<tr>
<td>&gt; Promoted trends</td>
<td></td>
<td>60 (23%)</td>
</tr>
</tbody>
</table>

Share of cultural content in news feed = 75%

Directly correlated to available inventory for advertising

¹) Europe: proxy based on users

Source: Twitter annual reports, press, Roland Berger
Cultural content has an overall impact of EUR 186 m on Twitter revenue in Europe [EUR 179 m direct and EUR 6 m indirect]

Calculation of the cultural content direct and indirect impact on advertising revenue

**B.1 Direct impact**

- **Advertising Revenue:** EUR 265
- **Data licensing & other revenues:** EUR 26

**Advertising**

- **Direct impact:** EUR 239
- **% of cultural content in news feed:** 75%

**Indirect impact**

- **% of ubiquity and adherence linked to cultural content (Proxy based on Facebook results):** 70%
- **Indirect impact:** [70-68%] = 2%

**Total impact**

- **Direct impact:** EUR 179 m (68%)
- **Indirect impact:** EUR 6 m (2%)

= **EUR 186 m (70%)**

Source: Corporate website, Declarative study of Facebook usage in France during week 4 of March 2015 by Ipsos for French creative and cultural industries, Roland Berger analysis
### Cultural content helps Twitter understand its users' expectations and thus better monetize their consumption profiles

#### Cultural content role in implicit and collateral value creation – Social networks

<table>
<thead>
<tr>
<th>Value creation drivers</th>
<th>Key Success Factors</th>
<th>Cultural content impact</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market capitalization</td>
<td>Customer stickiness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market share</td>
<td>Virality – Tribe effect</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share of wallet</td>
<td>Ubiquity for advertisers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brand image</td>
<td>Customer stickiness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Better understanding of users and needs</td>
<td>Content range</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer data monetization</td>
<td>Customer targeting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Machine learning</td>
<td>Customer stickiness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct value creation on sites embedding content from public cloud services</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

> Sharing and consuming cultural content directly contributes to the users experience of Twitter as a social media

> This trend is enhanced by the public status of the majority of tweets sent, more favorable to create a tribe effect

> The important range of content shared significantly enable Twitter to better understand users and their needs as well as monetize their data (profile and trends)

Source: Roland Berger analysis
4.4 Cloud services
Cloud services include lockers (Box), public audio (Soundcloud) and video (Youtube) platforms, as well as "rip-based" content players (Grooveshark)

Cloud services

A  Cloud services: Lockers

> Booming industry (23% p.a. CAGR 2013 - 2018 in zettabytes per year)

> Box is one of the major players in the cloud industry (USD ~3 bn valuation), allowing online storage and sharing services accessible from multiple devices

> The company raised USD ~520 millions before going public on NYSE on January 2015

> Formerly Box.net, Box started on B2B (business consumers) and has expanded to personal users

> Box business model is based on freemium offer

B  Cloud services: Public video/ audio platforms

> Cloud services includes mainstream public video (Youtube) and audio (Soundcloud) platform (on which content is generally posted by its owners) as well as "rip-based" content video/audio platforms (Grooveshark)

> Youtube is the leading online video platform in the World and is historically based on advertising revenues and is set to launch its paid-for service with ad-free videos and offline watching

> Soundcloud is a Swedish streaming audio platform enabling its users artists to upload, record, promote and share their originally-created sounds, through premium subscriptions but with no payback

> Grooveshark is an audio platform created in 2007 and shut down in May 2015 on which users make their music files available in the cloud. The website has been replicated more than 10 time since its closure

Source: Press, Roland Berger
Distant lockers usages have recently soared thanks to internet/IT giants' cloud services development.

Technical intermediaries description – Cloud services: Lockers

<table>
<thead>
<tr>
<th>Who are they?</th>
<th>Why are they important?</th>
<th>How do they generate revenue?</th>
</tr>
</thead>
<tbody>
<tr>
<td>OneDrive</td>
<td>Online storage and sharing services accessible from multiple devices</td>
<td>Main revenue generation approach</td>
</tr>
<tr>
<td>Dropbox</td>
<td>Various storage capacity allowing the user to store any media content (personal and public content) regardless of content type</td>
<td>&gt; Subscriptions</td>
</tr>
<tr>
<td>Amazon Cloud Drive</td>
<td>➔ By making content available from any device, enhance accumulation on the cloud of cultural content at no cost</td>
<td>➔ Freemium based on storage capacity levels</td>
</tr>
<tr>
<td>Google Drive</td>
<td></td>
<td>Main revenue generation levers</td>
</tr>
</tbody>
</table>

US Usage of major cloud locker services [% of respondents]

- iCloud: 27%
- Dropbox: 17%
- Amazon Cloud Drive: 16%
- Google Drive: 10%

Source: Roland Berger analysis
Cultural content contributed ~3% to the 2014 European lockers market (i.e. EUR 50 m) – Direct impact only

Europe – Extrapolation of Box analysis on the lockers market

Methodology – Volume market share

> European lockers revenue coming from cultural content was analyzed based on Box subscription revenue, premium-to-all user ratio and user market share

> In 2014, Europe gathered 224 million locker users

> Assumption: Europe locker premium-to-all user ratio is equal to Box’s (10%) – “Almost all users intend to store at low or no cost” – 22 million locker premium users

> Hence, Box 2014 premium-user market share in Europe amounted to 6% (1.3/22)

> Over the last months, most players aligned their cost per terabyte to remain competitive: Box market share in value and in volume are equivalent

Results

Europe

\[ \sum = \text{EUR 1 740 m} \]

Direct impact of cultural content

Revenue not impacted by cultural content

Total impact = EUR 50 m

Box

\[ \sum = \text{EUR 100 m} \]

6% of the market

Direct impact of cultural content

Total impact = EUR 3 m

3 (3%)

97 (97%)

35 (3%)

1 690 (97%)

Source: Cisco Global Cloud Index, Box, press, Roland Berger analysis
Lockers, such as box, revenue is based on freemium models, with a free basic storage space and paying storage upgrades.

Content role in Lockers business model

### Revenue model

<table>
<thead>
<tr>
<th>Box</th>
<th>Premium subscription revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue =</td>
<td># premium storage capacity subscribers</td>
</tr>
<tr>
<td></td>
<td>Average extra storage subscribed price</td>
</tr>
</tbody>
</table>

### Key Success Factors

- Usage quality Large size content storage/ sharing need
- Price competitiveness

### Qualitative estimate of the role of content

- HIGH: Share of large size content
- LOW: Cultural content does not have a direct impact on price competitiveness

Source: Roland Berger analysis
With EUR 100 m in revenue, Europe accounted for 40% of Box revenue in 2014.

General key metrics – Revenue [World; EUR m]

Europe represents 20% of total revenue in 2012 vs. 40% in 2014.

Box has 3 offers:
- Enterprise (subscription)
- Business (subscription)
- Personal (freemium)

On average, 10% of its customers pay a subscription.

Source: Corporate website, press reviews, Roland Berger analysis

1) Proxy based on press review
Box London office opened in 2012, and European revenue is growing at ~190% p.a. since 2012

Financial key metrics

Revenue and EBIT [Europe\(^1\); EUR m]

- Revenue grew by 191% p.a. over 2012-2014
- In 2014, Box EBIT margin stood at -77% of revenue vs. -186% in 2012
- EBIT level is improving but Box remains unprofitable so far

Source: Corporate website, press reviews, Roland Berger analysis

1) Europe: proxy based on interviews
Box registered users in Europe strongly increased at a 106% yearly rate over 2012-2014, reaching 13 m registered users in Europe in 2014.

Customer metrics

Registered users [World; million]

<table>
<thead>
<tr>
<th>Year</th>
<th>Rest of World</th>
<th>Europe</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>15</td>
<td>12</td>
</tr>
<tr>
<td>2013</td>
<td>18</td>
<td>8</td>
</tr>
<tr>
<td>2014</td>
<td>19</td>
<td>13</td>
</tr>
</tbody>
</table>

Other key figures [2014]

- 275 000 Organizations in 200 countries
- 44 000 Paying organizations

Example of customers:

Source: Canaccord broker report 2014, press, Roland Berger
Lockers such as Box are mostly monetizing professional users which do not store cultural content, as opposed to private users.

### Synthesis of cultural content impact on overall value creation

<table>
<thead>
<tr>
<th></th>
<th>Revenue generated from cultural content</th>
<th>Share of total revenue</th>
<th>Comments &amp; rationale</th>
</tr>
</thead>
</table>
| **Direct impact on revenue** | 2.8 (EUR m)                            | 2.8%                   | *Impact of 2.8% representing the share of cultural content on total content stored by premium users*  
> Professionals represents 75% of total premium users and do not store cultural content |
| Indirect impact on revenue  | NA (EUR m)                             | NA                     | *No indirect impact should derive from cultural content as Box main share of revenues comes from professionals, which share of cultural content stored is negligible* |

**Total impact for Box**

<table>
<thead>
<tr>
<th>2.8 (EUR m)</th>
<th>2.8%</th>
</tr>
</thead>
</table>

> Overall, low amount of revenue and value are impacted by cultural content (~2.8 m)  
> Lockers as Box do not strongly benefit from cultural content as their premium users are mostly concentrated on professionals

**Implicit value-creation levers**

<table>
<thead>
<tr>
<th>Medium</th>
</tr>
</thead>
</table>

> Representing a small share of premium users content stored, cultural content however contributes to personal lockers share of wallet, allowing users to easily share and store large size content (e.g. movies)

Source: Corporate website, press reviews, Roland Berger analysis
Lockers are used to store and share cultural content in a proportion of ~3% of the total payable storage, exclusively in B2C.

Cultural key metrics

**Cultural content share estimate in the premium storage [2014; %]**

<table>
<thead>
<tr>
<th>Distribution of users [2014; m registered users]</th>
<th>Premium revenue breakdown [estimates]</th>
<th>Average share of cultural content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free users 90%</td>
<td>Personal use 25%</td>
<td>Professional use only 75%</td>
</tr>
<tr>
<td>Premium users 10%</td>
<td></td>
<td>Personal use 1) Cultural content share 11%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Professional use Other content 89%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cultural content share 0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other content 100%</td>
</tr>
</tbody>
</table>

1) Estimates based on private copy remuneration on hardware devices in France

Source: Corporate website, press reviews, Roland Berger analysis
Lockers can be considered as originating ~3% of their revenue from cultural content, without fair remuneration to cultural industry.

Calculation of the cultural content direct impact on revenue

Total revenue [Europe\(^1\); 2014; EUR m]  

Cultural content factor

Cultural content direct impact on revenue [Europe\(^1\); 2014; EUR m]

<table>
<thead>
<tr>
<th>Premium subscriptions</th>
<th>Revenue</th>
<th>Share of cultural content in premium storage = 2.8%</th>
</tr>
</thead>
</table>

1) Europe: proxy based on press review

Source: Corporate website, press reviews, Roland Berger analysis
Cultural content sharing is an important metric in terms of indirect value creation for Lockers.

### Cultural content role in implicit and collateral value creation – Lockers

<table>
<thead>
<tr>
<th>Value creation drivers</th>
<th>Key Success Factors</th>
<th>Cultural content impact</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market capitalization</td>
<td>Customer stickiness</td>
<td></td>
<td>&gt; Although cultural content only accounts for a small share of premium users’ content stored, it contributes to personal lockers share of wallet by enabling users to store and share large size content (e.g. movies) easily</td>
</tr>
<tr>
<td>Market share</td>
<td>Usage quality, Price competitiveness</td>
<td></td>
<td>&gt; Cultural content also contributes to Box brand image and therefore market share in terms of number of users (premium and free users), as free users are mostly B2C users and store more cultural content than B2B players</td>
</tr>
<tr>
<td>Share of wallet</td>
<td>Large size content storage / sharing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brand image</td>
<td>Usage quality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Better understanding of users and needs</td>
<td>Content range</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer data monetization</td>
<td>Customer targeting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Machine learning</td>
<td>Customer stickiness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct value creation on sites embedding content from public cloud services</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Roland Berger analysis
Content-based cloud services give streamed access - mostly free, ads paid - to content posted by owners to their users

Technical intermediaries description – Cloud services: Public video/ audio platforms

<table>
<thead>
<tr>
<th>Who are they?</th>
<th>Why are they important?</th>
<th>How do they generate revenue?</th>
</tr>
</thead>
</table>
| ![Dailymotion](image) ![Break](image) ![YouTube](image) ![Vimeo](image) ![Veoh](image) ![SoundCloud](image) ![Grooveshark](image) ![Metacafe](image) ![Impurevid](image) | ![YouTube](image) | **Main revenue generation approach**

- Display

**Main revenue generation levers**

- Available inventory
- Valuation of the inventory

Most visited video websites
[Global; unique monthly visitors; 2015]

<table>
<thead>
<tr>
<th>Platform</th>
<th>Visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>YouTube</td>
<td>1000</td>
</tr>
<tr>
<td>Vimeo</td>
<td>130</td>
</tr>
<tr>
<td>Dailymotion</td>
<td>100</td>
</tr>
<tr>
<td>Break</td>
<td>14</td>
</tr>
<tr>
<td>Metacafe</td>
<td>13</td>
</tr>
</tbody>
</table>

Source: Alexa, Roland Berger analysis
Cultural content contributed ~92% to the 2014 European public video platforms market (EUR ~775 m), out of which ~66% directly

Europe – Extrapolation of Youtube analysis on the public video platforms – Results

Methodology – Volume market share

- European public video platforms revenue coming directly and indirectly from cultural content was analyzed based on Youtube revenue
- Youtube is estimated to have a 85% share of monthly unique visitors on the public video platforms market
  - at a stable revenue/user it can be assumed that Youtube accounts for 80% of video platforms revenue in Europe
  - as the major player on the market, Youtube revenue/user could be higher than other players, Youtube could therefore accounts for 90% of video platforms revenue in Europe
- An assumption of 85% of revenue market share has been adopted for Youtube extrapolation on European public video platform market

Results

Total impact = EUR 665 m

Total impact = EUR 775 m
Content is at the core of content-based public cloud services value models

Content role in Public video/ audio platforms business model

Revenue model

Revenue =

In-stream advertising revenue

In-display advertising revenue

Key Success Factors

Cultural content contributes to overall content quality and variety: it fuels customer stickiness

Cultural content does not have a direct impact on ubiquity for advertisers and ads relevance

Users’ online behaviors with respect to cultural content enable monetization through targeted advertising solutions

Quality of cultural content displayed directly impacts the number of video viewed and therefore the number of ad viewed per users

Qualitative estimate of the role of content

Source: Roland Berger analysis

1) Cost Per Video: price paid by the advertiser to use the video as an advertisement vector
2) Cost Per Click: price paid by advertiser per display ad clicked by user
3) Click Through Rate: number of click per display ads
4) Average number of display ads per search
With EUR 717 m revenue, Europe accounted for 17% of YouTube revenue in 2014.

Revenue [World; EUR m]

<table>
<thead>
<tr>
<th>Year</th>
<th>Europe</th>
<th>Rest of World</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>1,950</td>
<td>83%</td>
</tr>
<tr>
<td>2013</td>
<td>2,653</td>
<td>83%</td>
</tr>
<tr>
<td>2014</td>
<td>4,300</td>
<td>83%</td>
</tr>
</tbody>
</table>

1) Europe: proxy based on press information

Source: Corporate website, press reviews, Roland Berger analysis
Though not reaching breakeven until 2014, YouTube revenue in Europe grew significantly over the past years.

**Financial key metrics**

<table>
<thead>
<tr>
<th>Year</th>
<th>Revenue (EUR m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>325</td>
</tr>
<tr>
<td>2013</td>
<td>442</td>
</tr>
<tr>
<td>2014</td>
<td>720</td>
</tr>
</tbody>
</table>

+49% p.a.

**Other key figures [2014]**

- **USD 10 m**
  - investment into content ID (copyright management system)
- **Breakeven in 2014**
- **USD 1 bn**
  - paid to copyrights holders since 2007

1) Europe: proxy based on press information

Source: Corporate website, press reviews, Roland Berger analysis
Youtube's revenue in Europe grew significantly over the past years, along with users number

Customer metrics

**Number of monthly active users [2012-2014; m]**

<table>
<thead>
<tr>
<th>Year</th>
<th>Europe</th>
<th>Rest of World</th>
<th>Hours of videos uploaded/min (World)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>900</td>
<td>750</td>
<td>60</td>
</tr>
<tr>
<td>2013</td>
<td>1,000</td>
<td>833</td>
<td>100</td>
</tr>
<tr>
<td>2014</td>
<td>1,100</td>
<td>917</td>
<td>300</td>
</tr>
</tbody>
</table>

12-14 CAGR: +10.6%

**Other key figures [2014]**

- 1 bn + users worldwide in 2014
- 300 hours of videos uploaded per min.
- 50% of views on mobile devices

---

1) Europe: proxy based on press information
Source: Corporate website, press reviews, Roland Berger analysis
Cultural content has huge impact on YouTube total revenue (92%) – Both direct and indirect impact

Synthesis of cultural content impact on overall value creation – YouTube

<table>
<thead>
<tr>
<th></th>
<th>Revenue generated from cultural content [EUR m]</th>
<th>Share of total revenue</th>
<th>Comments &amp; rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct impact</td>
<td>475</td>
<td>66%</td>
<td>&gt; Cultural content accounts for 66% of total views on YouTube</td>
</tr>
<tr>
<td>on revenue</td>
<td></td>
<td></td>
<td>&gt; Official and non-official cultural content respectively represent ~47% and ~19% of total views</td>
</tr>
<tr>
<td>Indirect impact</td>
<td>190</td>
<td>26%</td>
<td>&gt; Non-cultural content also contributes to YouTube exhaustiveness and relevance</td>
</tr>
<tr>
<td>on revenue</td>
<td></td>
<td></td>
<td>&gt; An hypothesis based on Tunein case results in a reduction of 85% of views without cultural content on Youtube</td>
</tr>
<tr>
<td>Total impact</td>
<td>665</td>
<td>92%</td>
<td>&gt; Overall, cultural content has significant impact on YouTube revenue, especially as far as the direct impact is concerned (66% of revenue)</td>
</tr>
</tbody>
</table>

| Implicit value-creation levers | High | > By contributing to YouTube exhaustiveness and relevance, cultural content contributes to the company's market capitalization, market share and share of wallet among others |

Source: Roland Berger analysis
Cultural content amounts to 66% of YouTube views while almost 20% is not official

Cultural key metrics

<table>
<thead>
<tr>
<th>Share of video views / type [# of videos views; 2013]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Musical cultural content</strong></td>
</tr>
<tr>
<td>Officials: 79%</td>
</tr>
<tr>
<td>Non-official: 21%</td>
</tr>
<tr>
<td><strong>Video cultural content</strong></td>
</tr>
<tr>
<td>Home videos: 19%</td>
</tr>
<tr>
<td>Ads: 9%</td>
</tr>
<tr>
<td>Media: 1%</td>
</tr>
<tr>
<td>Others: 5%</td>
</tr>
<tr>
<td><strong>Non-official video content</strong>: 7% of total views</td>
</tr>
<tr>
<td><strong>Non-official musical content</strong>: ~12% of total views</td>
</tr>
</tbody>
</table>

Source: Hadopi, Roland Berger analysis

1) Music videos uploaded by official accounts of artists, companies, producers, broadcasting corporations etc.
Content consumption being proportionally related to revenue, 66% of YouTube value creation is estimated to have a cultural origin.

Calculation of cultural content direct impact on revenue:

Total revenue [Europe\(^1\); 2014; EUR m] x Cultural content factor = 720

Share of cultural content views on total views = 66%

- Display advertising
  - Display above suggestion list
  - Skippable / non-skippable video ads
  - Semi-transparent overlay ads

Revenue

Cultural content direct impact on revenue [Europe\(^2\); 2014; EUR m] = 720

- Official cultural content share
  - 338 (47%)
- Non-official cultural content share
  - 137 (19%)
- Remaining revenue
  - 245 (34%)

Source: Corporate website, press reviews, Roland Berger analysis

1) Europe: proxy based on press informations
2) Official and non-official cultural content (cultural content published without agreement with right holders)
YouTube benefits from cultural content as a stickiness lever for ~85% of users

Calculation of the cultural content indirect impact on revenue

**Revenue [Europe; 2014; EUR m]**

- **Total Revenue**: 720
- **Official cultural content share**: 338
  - **Direct impact of official cultural content**: 190
  - **Indirect impact of cultural content**: 475
- **Non-official cultural content share**: 137
  - **Remaining revenue**: 245
  - **Without official content**: 382
  - **Without non-official content, YouTube would lose 85% of its audience (proxy based on TuneIn impact)**: 137
- **Remainder**

**Rationale / hypothesis**

- Frequently used as a musical platform, (54% of European users use it as a musical platform in 2014)
- However less important in term of # of views, non-official content large range could replace official content if it was not available on the platform
- Based on a proxy on cultural content impact on TuneIn, it can been assumed that YouTube would lose 85% of its audience without cultural content

Source: Corporate website, press reviews, Roland Berger analysis
Cultural content has an overall impact of EUR 665 m on YouTube revenue in Europe [EUR 475 m direct and EUR 190 m indirect]

Calculation of the cultural content direct and indirect impact on revenue

**Direct impact**
- Advertising Revenue
  - Official cultural content share: 720
  - Non-official cultural content share: 245
- Remaining revenue: 338

**Indirect impact**
- Official cultural content share: 720
  - Remaining revenue: 338
- Non-official cultural content share: 137
- Remaining revenue: 190
- Indirect impact: 475

**Total impact**
- Remaining revenue: 55
  - Indirect impact of cultural content: 190
  - Direct impact of cultural content: 475

EUR 475 m (66%) + EUR 190 m (26%) = EUR 665 m (92%)

Source: Corporate website, press reviews, Roland Berger analysis
Collateral value creation is very largely driven by cultural content for public video and audio platforms, though being hardly considered.

Cultural content role in implicit and collateral value creation – Public video/ audio platforms

<table>
<thead>
<tr>
<th>Value creation drivers</th>
<th>Key Success Factors</th>
<th>Cultural content impact</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implicit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market capitalization</td>
<td>Customer stickiness</td>
<td></td>
<td>&gt; Cultural content contributes to the exhaustiveness and the relevance of public platforms and therefore directly contributes to customer adherence</td>
</tr>
<tr>
<td>Market share</td>
<td>Content quality Content range Usage quality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share of wallet</td>
<td>Virality</td>
<td></td>
<td>&gt; Customer preferences and habits in term of content consumption enable public platforms to better address customer needs as well as data monetization</td>
</tr>
<tr>
<td>Brand image</td>
<td>Usage quality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Better understanding of users and needs</td>
<td>Content variety</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer data monetization</td>
<td>Customer targeting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Machine learning</td>
<td>Customer stickiness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collateral</td>
<td>Virality + Content range + Content quality</td>
<td></td>
<td>&gt; Public platform benefits from content shared on other websites</td>
</tr>
</tbody>
</table>

Source: Roland Berger analysis
Issues about public audio/video platforms models revolve around value sharing and legality

Content role in Public video/audio platforms business model

Revenue model

```
Revenue = Premium subscription revenue
          × # premium subscribers
          Subscription price
```

Key Success Factors

- # free users (audience)
- Usage quality
- ROI for content producers
- Price competitiveness

Qualitative estimate of the role of content

- Cultural content range and quality is directly linked to the users experience on Soundcloud and therefore to the audience (HIGH)
- Cultural content does not have a direct impact on price competitiveness (LOW)

KSF also drive indirect (market capitalization, brand image, …) and implicit (machine learning, users understanding, …) value creation

1) Music uploaders only, users have free access

Source: Roland Berger analysis
With EUR 6 m in revenue, Europe accounted for 40% of Soundcloud revenue in 2014

General key metrics – Revenue [World; EUR m]

<table>
<thead>
<tr>
<th></th>
<th>Europe</th>
<th>Rest of World</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>8.0</td>
<td>4.8</td>
</tr>
<tr>
<td>2013</td>
<td>11.3</td>
<td>6.8</td>
</tr>
<tr>
<td>2014</td>
<td>15.8</td>
<td>9.5</td>
</tr>
</tbody>
</table>

+41% p.a.

1) Europe: proxy based on press informations

Source: Billboard, Soundcloud's management interview reports, corporate website, press, SimilarWeb, Roland Berger analysis
Soundcloud's business model remains highly non-profitable

Financial key metrics

Revenue and EBITDA [Europe\(^1)\); EUR m]

Soundcloud revenue grew by 41% p.a. over 2012-2014

In 2014, Soundcloud EBITDA stood at EUR -9 m (vs. revenue of only EUR 5 m)

Soundcloud remains highly unprofitable

---

1) Europe: proxy based on press information

Source: Billboard, Soundcloud's management interview reports, corporate website, press, SimilarWeb, Roland Berger analysis
The platform has been gaining tremendous audience volume since 2013 (+42.9% in 2014)

Customer metrics

**Number of monthly active users** [Europe\(^1\); million]

<table>
<thead>
<tr>
<th>Year</th>
<th># users</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>n.a.</td>
</tr>
<tr>
<td>2013</td>
<td>70</td>
</tr>
<tr>
<td>2014</td>
<td>100</td>
</tr>
</tbody>
</table>

**Other key figures**

- **224 m** estimated visits worldwide in April 2015
- **6-min.** visits on average in April 2015
- **1/3** of traffic came from the US in 2015
- **~10 m** music creators on Soundcloud in 2014

\(^1\) Europe: proxy based on press information

Source: Billboard, Soundcloud's management interview reports, corporate website, press, SimilarWeb, Roland Berger analysis
Soundcloud revenue is at 100% directly impacted by cultural content, either uploaded by composer, interpreter, author etc.

### Synthesis of cultural content impact on overall value creation

<table>
<thead>
<tr>
<th>Revenue generated from cultural content</th>
<th>Share of total revenue</th>
<th>Comments &amp; rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Direct impact on revenue [EUR m]</td>
<td>6</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; Originally created for musician to share their own content, especially embedded on other platforms</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; 100% of content uploaded on the platform is musical cultural content</td>
</tr>
<tr>
<td>Indirect impact on revenue [EUR m]</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total impact for Soundcloud</th>
<th>6</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>&gt; Overall, <strong>100% of revenue</strong> and value are impacted by <strong>cultural content</strong> (~6 m)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; Soundcloud is actively fighting against illegal content through Copyrights robots in order to reduce their share on the platform</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>b. Implicit value-creation levers</th>
<th>Very High</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>&gt; Cultural content is a key condition for Soundcloud implicit value creation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; No impact on collateral value creation should be noted as Soundcloud does not earn revenue from advertising</td>
</tr>
</tbody>
</table>

Source: Billboard, Soundcloud's management interview reports, Roland Berger analysis
As revenue are solely generated by content uploaders – not by listeners – copyrighted content has a very low impact on value creation.

Calculation of the cultural content direct impact on revenue

<table>
<thead>
<tr>
<th>Total revenue [Europe(^1); 2014; EUR m]</th>
<th>Cultural content factor</th>
<th>Cultural content direct impact on revenue [Europe(^1); 2014; EUR m]</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.3</td>
<td>100%</td>
<td>6.3</td>
</tr>
</tbody>
</table>

Share of cultural content on total available content = 100%

1) Europe: proxy

Source: Billboard, Soundcloud's management interview reports, Roland Berger analysis
Collateral value creation is very largely driven by cultural content for public video and audio platforms, though being hardly considered.

Cultural content role in implicit and collateral value creation – Public video/ audio platforms

<table>
<thead>
<tr>
<th>Value creation drivers</th>
<th>Key Success Factors</th>
<th>Cultural content impact</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market capitalization</td>
<td>Ubiquity for users and advertisers</td>
<td><img src="image" alt="Circle" /></td>
<td>&gt; Cultural content highly contributes to the exhaustiveness and the relevance of public platforms and therefore directly contributes to customer adherence</td>
</tr>
<tr>
<td>Market share</td>
<td>Thoroughness/ Relevance</td>
<td><img src="image" alt="Circle" /></td>
<td></td>
</tr>
<tr>
<td>Share of wallet</td>
<td>Ubiquity for advertisers</td>
<td><img src="image" alt="Circle" /></td>
<td></td>
</tr>
<tr>
<td>Brand image</td>
<td>Usage quality</td>
<td><img src="image" alt="Circle" /></td>
<td></td>
</tr>
<tr>
<td>Better understanding of users and needs</td>
<td>Content variety</td>
<td><img src="image" alt="Circle" /></td>
<td></td>
</tr>
<tr>
<td>Customer data monetization</td>
<td>Customer targeting</td>
<td><img src="image" alt="Circle" /></td>
<td></td>
</tr>
<tr>
<td>Machine learning</td>
<td>Customer stickiness</td>
<td><img src="image" alt="Circle" /></td>
<td></td>
</tr>
<tr>
<td>Direct value creation on sites embedding content from public cloud services</td>
<td>Virality + Content range and quality</td>
<td><img src="image" alt="Circle" /></td>
<td>&gt; Strongest impact for players like Soundcloud, as it is highly dependent on users uploads, recordings, promotion and sharing of their originally-created sounds</td>
</tr>
</tbody>
</table>

Source: Roland Berger analysis
"Rip-based" content audio/video platforms managed to reach important market shares though being today progressively dismantled.

Content role in Content-based cloud services business model

Revenue model

Key Success Factors

Qualitative estimate of the role of content

1) Cost Per Mille: price paid by advertisers for 1000 ads

Source: Roland Berger analysis
After recording declining revenue in 2014, Grooveshark closed permanently in May 2015 due to various copyright infringement lawsuits.

General key metrics – Revenue [World; EUR m]

1) Europe: proxy based on press informations

Source: Press reviews, Roland Berger analysis
Although Grooveshark revenue grew at a 35% rate over 2012-2014, revenue declined in 2014

Financial key metrics

Revenue [Europe\(^1\)]; EUR m

- **2012**: 0.6
- **2013**: 1.4
- **2014**: 1.2

Grooveshark revenue grew by 35% p.a. over 2012-2014

However, Grooveshark 2014 revenue dropped by EUR 200,000

In May 2015, the website was closed due to copyright infringement but it was re-opened a few days later

---

1) Europe: proxy

Source: Press, Roland Berger analysis
Grooveshark user base grew strongly over 2012-2014 (+46.8% p.a.) but started declining in 2014 (-2 m users), along with revenue evolution.

Customer metrics

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Monthly Active Users (Europe¹; million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>13</td>
</tr>
<tr>
<td>2013</td>
<td>30</td>
</tr>
<tr>
<td>2014</td>
<td>28</td>
</tr>
</tbody>
</table>

Other key figures

- **33 m** estimated visits worldwide in April 2015
- **5-min.** visits on average in April 2015
- **1/3** of traffic came from the US in 2015

¹ Europe: proxy

Source: Similarweb, press, Roland Berger analysis
Grooveshark revenue model is fully based on non-remunerated cultural content

Calculation of the cultural content direct impact on revenue

<table>
<thead>
<tr>
<th>Total revenue [Europe(^1); 2014; EUR m]</th>
<th>Cultural content factor</th>
<th>Cultural content direct impact on revenue [Europe(^1); 2014; EUR m]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Premium subscriptions</td>
<td>1.2</td>
<td>1.2</td>
</tr>
<tr>
<td>Revenue</td>
<td></td>
<td>0.0 (2%)</td>
</tr>
<tr>
<td>Share of cultural content on total available content = 98%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

> Grooveshark claims having a fair share of UGC in its content range as a promotion tool for starting music artists

> In terms of effective listening usage however, users almost entirely consume label-derived content

1) Europe: proxy

Source: Press reviews, Roland Berger analysis
Cultural content on Grooveshark could have generated EUR 325 m of value in 2013

Assessment of potential value creation by "rip-based" content platforms [2014]

Present situation

Assumptions

Potential of value generation

<table>
<thead>
<tr>
<th># users [millions]</th>
<th>Discounted Spotify cost of content acq. / user[^1] [EUR]</th>
</tr>
</thead>
<tbody>
<tr>
<td>27.4</td>
<td>(75% x 15.8)</td>
</tr>
</tbody>
</table>

[^1]: Spotify average royalties per user (all users; full year 2014)

Source: Digital Citizens Piracy report, Roland Berger analysis
Collateral value creation is very largely driven by cultural content for public video and audio platforms, though being hardly considered

Cultural content role in implicit and collateral value creation – Public video/ audio platforms

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<td>Market capitalization</td>
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<td></td>
</tr>
<tr>
<td>Collateral</td>
<td>Virality + Content range and quality</td>
<td></td>
<td>&gt; Strongest impact for players like Grooveshark, as it is highly dependent on users capacity to upload attractive / relevant content and go viral</td>
</tr>
</tbody>
</table>

Source: Roland Berger analysis
4.5 Private cloud
Internet service providers have developed remote access solutions to cultural content private copies for their customers.

Technical intermediaries – Private Cloud: nPVR

Who are they?

Why are they important?

How do they generate revenue?

Main revenue generation approach
> nDVR option subscription Revenue
> TV subscription

> TV content record services accessible from multiple devices, stored on operators servers (nPVR) or on a NAS provided by the operators (NAS based DVR)
> Currently with different legislative constraints depending on the country

Main revenue generation levers
> # subscribers
> Usage levels

Map of nPVR deployment in Europe [2014]

Source: IDATE, Roland Berger analysis
Contents

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2. Benchmark of licensed digital content distributors 59

3. Main results: value generation from cultural content 80

4. Detail of players economic models and value generation 83
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   4.2 Content aggregators 104
   4.3 Social networks 120
   4.4 Cloud services 148
   4.5 Private cloud 186

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The impact of cultural content on technical intermediaries revenue generation reaches 62% of their total revenue, to an amount of EUR 13.7 bn for Europe in 2014

Technical intermediaries create value thanks to cultural content in three ways:

> **Direct impact**, through **direct consumption or showcase** of (or monetized direct links to) cultural content (e.g. Google AdWords, in Facebook feed,…)

> **Indirect impact**, thanks to **the service stickiness, usage intensity and usage repetition** that are driven by the abundance of content made available (in other words: what revenue would remain if there was no cultural content made available by the service)

> **Implicit or collateral impact** (qualitative): in a fast-moving, technically complex, **oligopolistic and usage-driven competition**, market leaders derive increased future revenue generation capabilities, consumers knowledge and market valuation from those same **usages that are significantly driven by cultural content**

Source: Roland Berger analysis
The overall EU value gap yields from a bottom-up and segmented approach

Methodology

1. Analysis of the Value Chain and identification of key players per typology

2. Assessment for main players, of the share of revenue directly and indirectly generated / due to cultural content
   - **Direct**: revenue generated from the direct monetization and direct commerce of cultural content or related advertising inventory
   - **Indirect**: role played by cultural content in the economic model of the player (i.e. additional revenue that may disappear if not for cultural content)
   > Is it a "normal" commercial deal?
   > Is the distribution legal?
   > Is there an agreement with right holders?
   > Is there a value generation gap?
   > Is there an unfair / unjustified value gap that needs to be adjusted?

3. Extrapolation of the results to build the European picture
   - **Extrapolate** data either for an industry (e.g. music) or to a given typology of players (e.g. search engine)
   - **Example**: Google has 96% of market share (# users in EU, 2014), which easily provides a reliable picture of search engines

Source: Roland Berger analysis
Content direct and indirect contribution to revenue generation can be assessed as well as implicit contribution to value creation.

Content impact on value creation

Approach for revenue generation: direct and indirect

Content contribution to revenue generation

QUALITATIVE AND QUANTITATIVE

Overall value creation driven by cultural content

Implicit value creation mechanisms

Role of content

Is it a main lever in player X business model?

Market capitalization

Market share

Share of wallet

Brand image

Better understanding of users and needs

Customer data monetization

Machine learning

Contribution to long term value creation

QUALITATIVE

Source: Roland Berger analysis
The impact of cultural content on technical intermediaries revenue generation may reach 62% of their total revenue, to an amount of EUR 13.7 bn for Europe in 2014

Overall role of cultural content in revenue generation by Technical Intermediaries is very significant, and stands at EUR 13.7 bn for Europe in 2014, i.e. 62% of Technical Intermediaries revenue

> Direct impact amounts to EUR 5.0 bn, or 23% of T.I. revenue, while indirect impact reaches EUR 8.7 bn, or 40% of revenue

> Most of the value creation relates to Search Engines, in part due to their very large market: for S.E. only, cultural content has an impact of EUR 10.5 bn on revenue (65% of the total), and for Google only, EUR 10.1 bn. Direct impact reaches 18% of revenue, while indirect impact reaches 47%, due to the major role played by cultural content in user stickiness and frequency and depth of usage

> Social Networks are the second largest beneficiaries of cultural content-driven revenue generation: total is above EUR 2.2 bn (70%) about 43% direct and 28% indirect due to the sheer quantity of embedded content, that drives advertising revenue

> Public platforms such as YouTube are highly reliant on cultural content, which have an impact on 92% of their revenue (EUR 0.8 bn), largely driven by direct consumption (66% of their revenue); Aggregators are in a similar situation (85% total impact, to EUR 0.1 bn, from which 75% direct), while Lockers are impacted only to 3% of their revenue

> Such figures do not include the "hidden" impact of illegal usages, which are cannibalizing value worth billions of Euros

Source: Roland Berger analysis
The direct and indirect European cultural content value differ from one intermediary typology to the other – overall several billions at stake

Overview of technical intermediaries – [Cultural content in Europe; EUR m ; %]¹)

<table>
<thead>
<tr>
<th>Main player identified and analyzed</th>
<th>Total Revenue</th>
<th>Direct impact of CC</th>
<th>Indirect impact of CC</th>
<th>Total Impact of CC</th>
<th>Europe</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 1) All figures rounded from most accurate calculation – hence offsets in sums of figures presented

- **Search engines**: Google
  - Total Revenue: 15,470 EUR m
  - Direct impact of CC: ~2,835 EUR m (18%)
  - Indirect impact of CC: ~7,270 EUR m (47%)
  - Total Impact of CC: ~10,105 EUR m (65%)
  - Total Market value: 16,140 EUR m
  - Direct impact of CC: ~2,960 EUR m
  - Indirect impact of CC: ~7,590 EUR m
  - Total Impact of CC: ~10,550 EUR m

- **Content aggregators (music)**: Tunein
  - Total Revenue: 20 EUR m
  - Direct impact of CC: ~15 EUR m (75%)
  - Indirect impact of CC: ~2 EUR m (10%)
  - Total Impact of CC: ~17 EUR m (85%)
  - Total Market value: 100 EUR m
  - Direct impact of CC: ~75 EUR m
  - Indirect impact of CC: ~10 EUR m
  - Total Impact of CC: ~85 EUR m

- **Social Media**: Facebook
  - Total Revenue: 2,450 EUR m
  - Direct impact of CC: ~1,040 EUR m (43%)
  - Indirect impact of CC: ~675 EUR m (28%)
  - Total Impact of CC: ~1,715 EUR m (70%)
  - Total Market value: 3,160 EUR m
  - Direct impact of CC: ~1,340 EUR m
  - Indirect impact of CC: ~870 EUR m
  - Total Impact of CC: ~2,210 EUR m

- **Lockers**: Box
  - Total Revenue: 100 EUR m
  - Direct impact of CC: ~3 EUR m (3%)
  - Indirect impact of CC: ~3 EUR m (3%)
  - Total Impact of CC: ~3 EUR m
  - Total Market value: 1,740 EUR m
  - Direct impact of CC: ~50 EUR m
  - Indirect impact of CC: ~- EUR m
  - Total Impact of CC: ~- EUR m

- **Public video platforms**: YouTube
  - Total Revenue: 720 EUR m
  - Direct impact of CC: ~475 EUR m (66%)
  - Indirect impact of CC: ~190 EUR m (26%)
  - Total Impact of CC: ~665 EUR m (92%)
  - Total Market value: 845 EUR m
  - Direct impact of CC: ~555 EUR m
  - Indirect impact of CC: ~220 EUR m
  - Total Impact of CC: ~775 EUR m

**TOTAL**

- Total Market value: 21,985 EUR m
- Direct impact of CC: ~4,980 EUR m (23%)
- Indirect impact of CC: ~8,690 EUR m (40%)
- Total Impact of CC: ~13,670 EUR m (62%)

Source: Roland Berger analysis
Methodology (1/5)

Global methodology (1/2)

> Cultural content is considered in a broad sense, covering:
  - Press
  - Music
  - Radio
  - Books
  - Live art performances (including music)
  - TV
  - Cinema
  - Video Games
  - Visual Arts (incl. architecture)
  - Advertising
  - Internet Videos

> Usage covers different types of activities related to cultural content such as access, e-commerce, showcasing and discussing on social media, and describing and providing information around cultural content. Those terms are used in a broad sense, meaning that the usages on the considered site may requiring up to 1 click to access streaming, downloading, buying, discussing,… cultural content (i.e. potentially through another site)

Global methodology (2/2)

> 5 typologies of technical intermediaries have been considered in the digital ecosystem:
  - Search engines
  - Content aggregators
  - Social media
  - Personal cloud
  - Public video platforms

> One key player has been picked per typology of intermediaries:
  - Google for search engines
  - TuneIn for content aggregators
  - Facebook for social media
  - Box for personal cloud
  - YouTube for public video platform

> Share of revenue directly (and indirectly) generated with a role played by cultural contents has been assessed for all these players and a scale-up of the results to the full market has been done in order to build the full picture for each type of intermediaries.
Methodology (2/5)

Sources

> All revenues estimates and extrapolation of the results were based on **3 types of sources:**
  - **Publicly available data** from players
  - **4 studies** specifically performed in **France** (Google study in February 2015 and Facebook usage in March-April 2015) and **Italy** (Google study in July 2015 and Facebook usage in August 2015)
  - Usage studies have been run with Nielsen/Médiamétrie and Sépage (search engines, passive study based on semantic machine learning) and with Ipsos (social networks, declarative study)
  - **Other publicly available data** related to usage and markets (including population, households, share of connected population, advertising market data,…)

> **Typology of impact**

Technical intermediaries create value thanks to cultural content in three ways:

> **Direct impact** covers the generation of revenue through direct monetization (such as through advertising enabled by cultural content-generated inventory, or sponsored links directing to sites monetizing cultural content, sale of cultural content,…) or direct commerce of cultural content. **Analogy: if a general retailer stops selling cultural goods, the direct impact would be the revenue lost instantly due the shutdown of this part of its operations**

> **Indirect impact** covers the additional revenue that would disappear if there was no cultural content available to the service, due to impact on service stickiness, usage intensity and usage repetition,… **Analogy: if a general retailer stops selling cultural goods, its customers may shop less frequently, and not go through the whole store in search of cultural goods, thus leading in the medium term to an additional decrease in revenue**

> **Implicit or collateral impact** (qualitative): in a fast-moving, technically complex, oligopolistic and usage-driven competition, market leaders derive increased future revenue generation capabilities, consumers knowledge and market valuation from those same usages that are significantly driven by cultural content. **Collateral impact has been assessed qualitatively**

> **We consider Direct impact to be more significant than Indirect impact in terms of economics understanding**, as it can be assessed very directly based on usage data, rely on very few hypothesis, and directly represent a material link between revenue generation and usages related to cultural contents
Methodology (3/5)

Estimation of impact on revenues
As 2 impacts were identified, 2 types of calculation were made:

> Revenue generated from the **direct monetization** and **direct commerce** of cultural content or related advertising inventory is considered as direct impact. This impact is very material and can be assessed with rather strong accuracy thanks to a direct identification of the role of cultural content and thanks to usage studies.

> Indirect impact is the amount of **additional revenues likely to disappear if cultural content was to disappear** from the web. This impact has been estimated thanks to hypothesis on the evolution of customer usages and is more difficult to assess due to the absence of "like-for-like" examples.

1. Google and the search engine market

> **Google revenue** in a given geography is either a public data or an estimate based on the number of connected inhabitants (and based on the closest available data) and is split in 4 types of revenue: **Google.com and Google network which belong to search engine scope** and YouTube and other revenues considered out of scope. This split is based on worldwide distribution of Google’s revenues.

> Direct revenues in Google case come from **sponsored links that have been clicked and which lead to sites related to cultural content** (access to press, non-press access, e-commerce, social, and other cultural links): this figure is directly available from usage studies.

> For **indirect revenues**, the average of 2 estimates based on 2 methodologies has been used:

- One approach evaluates the share of cultural content (access to press, music, video games, TV…) in natural results; the hypothesis is that in the long term overall revenue would decrease by the same amount as available clicks (in addition to revenue lost from direct impact) due to reduced usage. This figure is directly available from usage studies.

- Another approach considers that all users would end-up with the same level of usage as current users which do not consume a lot of cultural content. This approach reveals the stickiness to the service due to its exhaustiveness and relevance. The population of users is split into 2 groups, one with strong cultural content consumption (1) and one with weak cultural content consumption (2). (1) and (2) have roughly the same size. It appears consumers in (2) have overall weaker usages than (1). The potential "indirect + direct" impact would be proportional to the loss of clicks if all users were to adopt the same usages as consumers in (2).

> **Google had a 92% to 96% market share in terms of users in 2014 for the considered geographies**; Assumption on other players’ monetization capacity: 50% of Google’s (industry estimate).

> **For Europe, the impacts in % have been assumed to be the average between Italy and France**.
2. Tuneln and the content aggregator market

> Tuneln revenues in a given geography are based on percentage of users in considered geography vs. worldwide # users / revenues ; based on publicly available figures, Tuneln market share is estimated at 20% of the market

> Direct impact is based on cultural content on radio stations (music & news), which is publicly available data at Europe level. Without this content, usage or number of channels would decrease proportionally, thus leading to less revenue (less inventory or lower fees)

> Indirect impact is based on contribution of cultural content to ubiquity and adherence, in addition to direct impact, based on estimates of real consumption of content in radio (cultural vs. non-cultural)

> **Impacts in % have been assumed to be similar across all countries (thus also for Europe)**

3. Facebook and the social media market

> Facebook revenues are estimated thanks to revenue per user worldwide and number of users in a given geography; worldwide and European social media markets are based on publicly available studies; Facebook market share has been assumed to be constant over Europe at 78%

> Facebook revenues are split between displays advertising, native advertising and payment & other fees, this split is public for Europe, and the same proportion has been applied throughout

> To calculate direct and indirect impacts, **only displays advertising and native advertising** have been taken into account, being directly related to usages (# of page views for display and length of read newsfeed for native advertising)

> **Direct impact** is calculated with the percentage of cultural content published or shared on Facebook applied to native advertising revenues: published and shared content are the only contributors to length of read newsfeed, thus proportionally generating inventory for native advertising

> For **indirect impact** the approach considered that all users would end-up with the same level of usage as current users which do not consume a lot of cultural content, for all types of actions. This approach reveals the stickiness to the service due to its richness. The population of users is split into 2 groups, one with strong cultural content consumption (1) and one with weak cultural content consumption (2). (1) and (2) have roughly the same size. It appears consumers in (2) have overall weaker usages than (1). The potential "indirect + direct" impact would be proportional to the loss of actions if all users were to adopt the same usages as consumers in (2) : as no one will click on / publish cultural content, cultural content consumers / influencers will use the site much less, thus reducing the overall inventory available for monetization

> **For Europe, the impacts in % have been assumed to be the average between Italy and France**
Methodology (5/5)

4. Box and the personal cloud market
   > Percentage of cultural content share with private storage is 11%, estimation based on private copy remuneration on hardware devices in France. Cultural content share for professional use is estimated at 0%
   > This represents the direct impact. No indirect impact has been assessed
   > Impacts in % have been assumed to be similar across all countries (thus also for Europe)

5. Youtube and video platform market
   > Direct impact is estimated with percentage of musical and video cultural content: those figures are available from various studies; we have used figures from France (Hadopi study) for all estimates
   > Revenue generation being driven by advertising inventory, i.e. number of views, there is a direct correlation between type of contents consumed and share of revenue
   > Indirect impact is estimated based on the same approach as for Content Aggregators
   > Impacts in % have been assumed to be similar across all countries (thus also for Europe)
It's character that creates impact!