Consumer/end-user & advertising spending

5 Year historical & 5 Year forecast data

54 countries

17 segments

Data consumption
Video games
Internet access
TV advertising
Cinema
Music
Radio
Magazine publishing
Newspaper publishing
Book publishing
Out-of-home advertising
Business-to-business
E-sports
Internet advertising
Internet video
Traditional TV and home video
Virtual reality
Emerging technologies are enabling companies to differentiate by creating innovative user experiences.
The accelerating speed of technological change is opening up large opportunities for innovation in product offerings that revolve around user experience.

1. Technology is the driving force behind new and rapidly growing segments

2. Exploitation of data and new technology is enabling innovative user experiences.
Technology companies now dominate the world’s largest companies measured by market capitalization.

Top 5 public traded companies by market cap (June 30)

2007: Exxon, General Electric, Microsoft, Shell, AT&T

2017: Apple, Alphabet, Microsoft, Amazon, Berkshire Hathaway Inc.

Source: FT Global 500 & Ycharts.com
<table>
<thead>
<tr>
<th>Region</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scandinavia</td>
<td>3.1%</td>
</tr>
<tr>
<td>Germany</td>
<td>1.8%</td>
</tr>
<tr>
<td>Russia</td>
<td>7.2%</td>
</tr>
<tr>
<td>Japan</td>
<td>1.8%</td>
</tr>
<tr>
<td>China</td>
<td>8.3%</td>
</tr>
<tr>
<td>India</td>
<td>10.5%</td>
</tr>
<tr>
<td>Global</td>
<td>4.3%</td>
</tr>
<tr>
<td>Brazil</td>
<td>4.7%</td>
</tr>
<tr>
<td>US</td>
<td>3.7%</td>
</tr>
<tr>
<td>France</td>
<td>2.4%</td>
</tr>
<tr>
<td>UK</td>
<td>3.0%</td>
</tr>
</tbody>
</table>
Expected global growth in E&M expenditures of 4.3%
E-sports and internet video are expected to outperform the other segments in the global E&M market in terms of percentage growth

Global growth by segment 2016-2021F

<table>
<thead>
<tr>
<th>Segment</th>
<th>Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-sports</td>
<td>21.7%</td>
</tr>
<tr>
<td>Internet video</td>
<td>11.6%</td>
</tr>
<tr>
<td>Internet advertising</td>
<td>9.8%</td>
</tr>
<tr>
<td>Video games</td>
<td>8.2%</td>
</tr>
<tr>
<td>Internet access</td>
<td>6.0%</td>
</tr>
<tr>
<td>Cinema</td>
<td>4.4%</td>
</tr>
<tr>
<td>Total music revenue</td>
<td>3.5%</td>
</tr>
<tr>
<td>TV advertising</td>
<td>2.8%</td>
</tr>
<tr>
<td>Business-to-business</td>
<td>2.7%</td>
</tr>
<tr>
<td>Radio</td>
<td>2.1%</td>
</tr>
<tr>
<td>Total traditional TV and home video</td>
<td>1.3%</td>
</tr>
<tr>
<td>Books</td>
<td>1.1%</td>
</tr>
<tr>
<td>Magazines</td>
<td>-0.5%</td>
</tr>
<tr>
<td>Newspaper</td>
<td>-2.7%</td>
</tr>
</tbody>
</table>
The Scandinavian E&M market
Spending on digital channels is expected to drive growth in the Scandinavian E&M market.

Digital is defined as:
- Online and mobile internet advertising
- Mobile TV subscription
- Digital music
- Electronic home video
- Online and wireless video games
- Digital consumer magazines circulation spending
- Digital newspaper circulation spending
- Digital trade magazine circulation spending
- Electronic consumer, educational, and professional books
- Satellite radio subscriptions
Internet advertising is expected to lead growth across media segments in the Scandinavian E&M market towards 2021

Scandinavian growth by segment 2016-2021F

<table>
<thead>
<tr>
<th>Segment</th>
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</thead>
<tbody>
<tr>
<td>Internet advertising</td>
<td>8.3%</td>
</tr>
<tr>
<td>Video games</td>
<td>6.7%</td>
</tr>
<tr>
<td>Internet access</td>
<td>5.0%</td>
</tr>
<tr>
<td>Internet video</td>
<td>4.2%</td>
</tr>
<tr>
<td>Music</td>
<td>2.8%</td>
</tr>
<tr>
<td>Radio</td>
<td>2.4%</td>
</tr>
<tr>
<td>Out-of-home advertising</td>
<td>2.1%</td>
</tr>
<tr>
<td>Business-to-business</td>
<td>1.4%</td>
</tr>
<tr>
<td>TV subscriptions and licence fees</td>
<td>1.1%</td>
</tr>
<tr>
<td>TV advertising</td>
<td>0.9%</td>
</tr>
<tr>
<td>Book publishing</td>
<td>-0.2%</td>
</tr>
<tr>
<td>Filmed entertainment</td>
<td>-1.0%</td>
</tr>
<tr>
<td>Magazine publishing</td>
<td>-1.3%</td>
</tr>
<tr>
<td>Newspaper publishing</td>
<td>-4.6%</td>
</tr>
</tbody>
</table>
Mobile is expected to make up more than 70% of internet advertising revenue in US by 2021

Internet advertising in US advertising revenue

2016–2021F CAGR

Mobile internet advertising in USA

Non-Mobile internet advertising in USA
User Experience Driving Growth
Print will continue to see a negative growth rate and digital will not compensate for this loss

Year-over-year % growth rate in Scandinavia

2016–2021F CAGR
11.7 %  Digital circulation
3.1 %  Digital advertising
- 6.0 %  Print advertising
- 6.7 %  Print circulation
Mobile will continue to be the biggest growth story towards 2021 in internet advertising.

Internet advertising market by sub segment in Scandinavia

2016 - 2021F CAGR
Mobile 17.6 %
Search 10.7 %
Video 8.9 %
Classified 2.8 %
Banner/Display 0.3 %
Traditional losing ground to online streaming services focusing on user experience

Traditional TV advertising is losing ground to online streaming services.
Electronic home video is expected to grow, but cinema is still keeping up

Scandinavian filmed entertainment revenue

2016–2021F CAGR

Electronic home video 4.2%
Cinema tickets 2.0%
Physical home video -9.6%
Despite growth in streaming, live music will continue to be the main revenue stream in the music industry.

Scandinavian music revenue

2016–2021F CAGR

- Streaming: 6.7%
- Live music: 2.5%
- Physical music: -3.7%
Emerging technologies will change how companies generate, distribute and control content.
Among emerging technologies, AI, IoT and VR received most funding in 2016

Global VC funding, Essential Eight technologies

- AI (29%)
- IoT (24%)
- VR (14%)
- Other (Robots, AR, Drones, 3D Printing and Blockchain) (33%)

5,876 USD millions

Source: CB Insights, PwC, VC Funding
Scandinavia is better positioned to create value from Internet Of Things compared to the rest of the world

Key drivers for the Scandinavian IoT value creation potential

1. Well developed fiber- and internet-infrastructure.

2. 4G coverage is widely spread across Scandinavia. Sweden is leading in testing 5G coverage.

3. On average, each person in the Nordics has almost 3 devices connected to the internet in 2016. By 2021, this is expected to grow to 6 devices per capita, which represents four times as many devices as in the rest of the world.

By expanding to new or even non-existing entertainment platforms, E&M companies can unlock the potential of IoT

PwC AI-report: Sizing the prize

67M USD
IoT Scandinavian market size 2016

20 %
Nordic IoT CAGR 2016-2021 in the Nordics 2016 - 2021

CEO perspective: E&M CEOs are mostly concerned about changing consumer behaviour

- 81% of E&M CEOs are concerned about changing consumer behaviour
- 78% of E&M CEOs are concerned about availability of key skills
- 78% of E&M CEOs are concerned about uncertain economic growth
- 77% of E&M CEOs are concerned about the speed of technological change
- 75% of E&M CEOs are concerned about volatile energy costs
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