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Industrial analysis of OTT market and its implication for Telenor Norway

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Abstract

With the rapid changes in the world of technology the boundaries are blurring between telecom and the world of internet. Telecom operators need to struggle hard and quick in order to be ahead of the race. Traditional operators are vulnerable to the new content markets and services being introduced, particularly over-the-top (OTT) services.

OTT service basically refers to any type of media that is shared over the internet. The four distinct areas of OTT include; Mobile voice, Media (Video), Messaging and Cloud services. These OTT services do not require a dedicated ISP which controls or is responsible for the content shared. Neither are they concerned with copyrights and control of viewing instead it only uses ISP for transporting IP packets. The content is delivered to an end user device through a third party source. One of the benefits of OTT is that the end point can be a Smart TV, laptop, mobile device, game consoles, tablets or even STB. Some well-known examples of OTT services are Skype, YouTube, Facebook, Netflix, Hulu, WhatsApp, Viber etc.

This paper will analyze latest trend in OTT communication services worldwide with specific focus on the video services such as Internet TV, Video on Demand, multi-screen play and mobile media. The television industry is yet another area that is evolving fast with a growing demand of multi-screen video consumption. According to Gartner, growth per user can easily reach up to 50% a year, particularly due to video. Therefore, at this point it is very critical for Telenor Norway and other network operators to embrace OTT and pursue innovative strategies to generate revenue streams and remain in the market.

The arrival of smartphones has played a big role in revolutionizing OTT services, mainly because these smartphones have multimedia and advance communication functions such as 3G, Wifi etc. Operators need to create business models that are adaptable and agile to fast evolving consumer behavior.

The scope for this project is investigation of latest trend in the OTT market and possible opportunities for Telenor Norway. The project will further discuss some recommendations and strategies that can be opted by Telenor Norway to stay ahead in the OTT market.

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1 Introduction

Telenor Norway is known to be among the top performing European incumbents since over a decade. It has held a strong market position in both fixed and mobile connectivity services. It also happens to be a major contributor to research and innovation. The total revenue share is currently 51% which makes it by far the largest player in the Norwegian telecom, data services and TV markets. The biggest competitors of Telenor Norway are Tele2, Netcome, Lyse and Get, which are either mobile or fixed only players.

Telenor Norway's total mobile subscriber market share is 50% across all brands (Telenor, djuice, Talkmore and Dipper), with the business market being a stronghold. Netcom and Tele2 are the two major competitors. The Norwegian mobile market is at the forefront with the latest LTE technology being deployed and it is already at a data-centric business model where voice and SMS is included.

The rapid technology shift towards mobile and fiber is a major threat to fixed line revenues, and also substantial use of OTT services is challenging linear TV revenues. Telenor Norway will therefore need to adapt quickly and streamline their value chains in order to ensure long term market competitiveness. Arrival of several other market trends can be a major threat for Telenor Norway such as;

- Entrance of a 3rd new mobile player in the market can increase uncertainties
- Rapid mobile technical development
- Significantly increasing network performance
- Emergence of VoLTE, M2M, Big data and IoT
- Fast growing consumption of content over OTT
- Increasing smartphone penetration and increasing digital engagement driving customer demand for speed and capacity
- Stricter mobile access and fiber regulation can further hinder the flexibility in both wholesale and retail.

Emergence of OTT is happening on four different battlegrounds which are mainly messaging, voice, media and cloud.

1. 1 OTT messaging service

Messaging is the most commonly used OTT communication service on various devices. There are many examples of OTT messaging such as WhatsApp, Viber, Facebook, Instagram, Hangouts and so on. Usage of the kind of OTT service significantly varies from country to country. VoIP/Video app has been more popular in the Gul Cooperation Countries as compared to Europe and USA (Rusby, 2015). This is mainly because large number of population is from overseas who use this service to communicate with family and relatives in their home countries. While in Europe and USA VoIP apps do not make a significant difference in the usage, experience and price advantage for domestic calling.

1. 2   OTT video/media service

Video service is another area that is profoundly being affected by the paid-for OTT video service on TV and is a rapidly growing area in the European video services market. There are three major types of OTT video; streaming live video, catch-up service or video on demand. Main contributor to this growth is the increasing popularity of SVoD (subscription video on demand) services. One of the best examples of SVoD is Netflix that now offer "all-you-can-eat" access to a selection of content for a fixed monthly subscription.

By 2019 it is expected that set-top-boxes (STBs) will account for 20% of devices that are used to access OTT video on TV (Scott, 2015). According to Analysis mason one of the key factors is the growing availability of OTT video on pay-TV operator STBs. The number will nearly double and the smart TV will boost their share of devices to 43%.

This is one of the reasons there has been an increasing number of partnerships among telecommunication operators, pay-TV operators and OTT video service providers.

1. 3   OTT Audio/voice service

There are a number of audio OTT services available in the market such as Skype, Viber, Line and very recent WhatsApp voice service. This launch has increased the competition with its rivals and is a significant event in the communications market. It has over 700 million active users and the sheer size of WhatsApp's network could disrupt the market. (Sale & Xylouris, 2015) Some operators have already adopted a defensive approach such as Etisalat which has banned the voice feature in UAE. Others would need to improve their feature set in communication services to keep up.

1. 4   Cloud

The newest OTT battleground is the cloud services. After the launch of iCloud every telecom was contemplating its response to Apple's move in the cloud market. At this stage, there are only a few cloud players beyond Apple with compelling value propositions such as Google, Microsoft and Amazong to name the most obvious but it's expected that many more will join the fray. Telecom operators are especially well positioned to leverage their customer relationships and network assets and carve out a distinct position.

It will be interesting to oversee the telecom battles for the enterprise and consumer clouds. They will need to develop vertically focused, targeted solutions primarily by partnering. Orange, for example is partnering with the Virtual Computing Environment Co. (VCE), formed by Cisco, VMware, and EMC2 to deliver a complete IT infrastructure that integrates best of breed virtualization, networking, computing, storage, security and management technologies.

On the consumer side, operators already benefit just by enabling cloud service and getting customers to sign up for higher level data plans, Other opportunities exist in the creation of open platforms to aggregate cloud services and applications and broker cloud services between

operators, system integrators and developers. Most importantly, consumer cloud services increase stickiness, as consumers deport many of their digital valuable such as photos, music, videos with the operators.

Because the cloud market is still new, this is the optimum time for telecom operators to begin to capitalize on the opportunity. Defining the right value propositions and structuring the right technology and go to market partnerships will be key, to winning on this front.

1.4.1 Cloud Gaming

Cloud gaming services are being trialed or bundled alongside high-speed fixed broadband services by an increasing number of fixed operators. Cloud gaming platforms enable users to play video games on devices such as TV sets, tablets or handsets by connecting to a remote (cloud) server that runs the game in real-time. The technology has existed for several years, but the ecosystem is only now reaching maturity due to software technology improvements.

Operators are a key part of the cloud gaming value chain because the success of the service is dependent on high-speed and low-latency connectivity. Platform providers regard operators as major distribution channels, leading to several partnerships over the past few years. GameTree's platform is available over a number of providers' networks worldwide, including airtel India (India), DIRECTV (North America) and Iliad (France). Iliad launched both GameTree and Gameloft services in 2011 in response to SFR's cloud gaming service, Jeux à la Demande, which was launched in partnership with G-cluster Global in 2010.

Major players in the gaming industry are set to change the market landscape in 2015, and are open to operator partnerships

US operators have also expressed their interest in entering the market. For example, in 2012 Verizon launched Ubitus' GameNow Cloud Gaming service, which enables multi-screen gaming exclusively on its LTE network. Comcast is also said to be close to an agreement with the largest game publisher firm, Electronic Arts (EA), to launch its services over Comcast's X1 cable STB. Comcast has the largest cable network in the country and this potential agreement with EA could make the firm a one-stop solution for all the gaming needs of its subscribers.

2 OTT and Handset Communication Services Worldwide

Mobile handset data will be the single largest source of revenue growth in telecoms markets during the next 6 years, as the shift from voice to data looks robust in developed countries, and smartphone penetration gains momentum in emerging markets.

Mobile handset data revenue will grow during the next 6 years in all eight geographical regions that have been modeled in the figure below

However, market dynamics and challenges for telecoms service providers vary substantially by region. We have identified two major drivers of mobile handset data revenue growth.

Value: Increased spend per user on mobile handset data services will be the main driver of growth in developed regions (Central and Eastern Europe (CEE), developed Asia–Pacific (DVAP), North America (NA) and Western Europe (WE)). 85% of mobile handset data revenue growth during 2013–2018 will come from increased spend on data services as existing users upgrade to smartphones, and about 15% from new users entering the market. The average spend per user (ASPU) on handset data will increase by double digits in Europe, and single digits in NA and DVAP.

Volume: An increased number of smartphone users will be the main driver of growth in emerging regions (emerging Asia–Pacific (EMAP), Latin America (LATAM), Middle East and North Africa (MENA) and Sub-Saharan Africa (SSA)). The number of smartphones will increase at a CAGR of 26% – twice the rate that we expect in developed regions. Smartphone penetration of handsets will reach about 50% in EMAP in 2018 and about 60% in LATAM – as assumption is that handset subsidies, cheaper devices, and data package offerings will stimulate demand in countries where the addressable market is still very high but new users have less disposable income than established subscribers. Handset data ASPU will continue to be low in 2018 – about USD2 per month in EMAP and LATAM, and about USD1 per month in MENA and SSA.

Figure below shows that about 75% of mobile handset data revenue growth will come from three regions during the next 6 years.

MOBILE HANDSET DATA REVENUE WILL BE DRIVEN BY VOLUME IN EMERGING MARKETS AND VALUE IN DEVELOPED COUNTRIES

2. 1 Emerging Asia–Pacific:

The region will account for about half of the growth in smartphone numbers during 2013–2018 because the addressable market in China and India is enormous. Forecasted smartphone growth will be CAGR 24% because affordable devices such as the inexpensive Android handsets that are manufactured in the region will become abundant, which will drive handset data services among lower-spending users. EMAP will generate around USD80 billion in handset data

revenue in 2017 when it will overtake DVAP to become the second-largest market after NA (about USD100 billion).

2. 2 North America:

Growth in the number of smartphones will continue to be solid, as the success of tethering plans for smartphones and multi-device plans shift to data spend from mobile broadband USB modems. At the end of 2018, 84% of handsets will be smartphones in NA, up from 54% in 2012. LTE take-up is stronger than we had expected in the USA, and most nationwide operators were expected to have widespread 4G coverage by the end of 2013. Mobile handset data revenue will grow at a CAGR of 10%, mainly driven by an 8% growth in handset data ASPU. The USA will remain the leading market in the world, with handset data revenue of about USD90 billion in 2018.

2. 3 Western Europe:

Handset data ASPU will double in WE (from USD4 per month in 2012 to USD8 in 2018), but will remain substantially lower than in NA and DVAP (both above USD20), and will not be enough to offset the big decline of voice and messaging. The actual growth of handset data revenue in the first half of 2013 slightly exceeded our expectation as the shift from mobile broadband continues, and operators tend to attribute more revenue to the data element, when this is part of a voice and data package. In 10 of the 16 Western European countries covered, year-to-date data suggests that the decline in large-screen mobile broadband connections is happening even faster than previously forecasted, with the Netherlands, Portugal, Spain and the UK representing some significant examples.
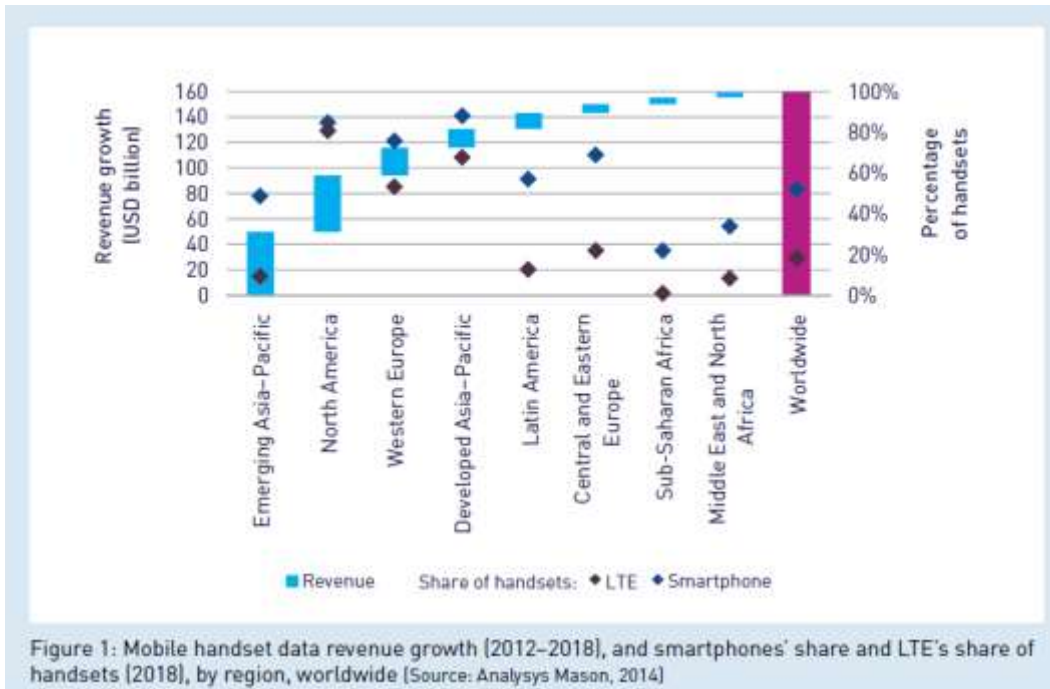
Figure 1: Mobile handset data revenue growth (2012–2018), and smartphones' share and LTE's share of handsets (2018), by region, worldwide (Source: Analysys Mason, 2014)

Figure 1 Smartphone and Data Revenue Growth

3 Telecoms Business Strengths and New Digital Economy

Telecoms operators participate in one of the largest, most dynamic industries in the world. They also have almost inconceivable business and operational strengths (in figure below), which they can use to move into new areas.

Established customer relationships	Established billing relationships	Large amounts of behavioural data
• Brand recognition • Established, ongoing contact • Offers accepted and rejected • Residence, family unit, locations	• Customers send money on a returning basis • Knowledge of credit history • Applies to prepaid as well as postpaid	• Who they call and when • When they access the intrnet and what they visit • When sleeping and awake • Naughty or nice
Operational strengths		
Distributed, mobile workforce	BSS/OSS systems	Data centres Services

Figure 1: Core business competencies of telecoms operators
[Source: Analysys Mason, 2014]

Figure 2 Core Business Competencies of Telecom Operators

OPERATORS MUST PLAY ON CURRENT STRENGTHS AND DEVELOP NEW COMPETENCIES TO THRIVE IN THE DIGITAL ECONOMY THRIVE IN THE DIGITAL ECONOMY

3. 1 Established customer relationships:

Consumers are familiar with operators' brands, and in most cases trust them. This relationship could help operators move into areas such as security software and services, and mobile money. Operators also know a significant amount about their users, such as what kind of offers they take or reject, where they live (in some cases), their family unit members, and the locations in which they use their services. Such knowledge could lend itself to the provision of location-based services or predictive marketing services.

3. 2 Established billing relationships:

Millions of people worldwide already give money to the operators, some monthly via postpaid bills, and some more often via prepaid top-ups. Operators know their credit history, and often have stored credit information about their users. They can make use of these established billing relationships to sell new services to their customers. Amazon.com, for example, started by just selling books, but its product range has expanded dramatically.

3. 3 Large amounts of behavioural data:

Even without advanced technologies like deep packet inspection (DPI), operators have a large volume of behavioral data on their users, including who they call, when they call, and when they access the Internet. DPI makes even more information accessible, such as who they visit and, perhaps, what they do (privacy laws may intervene here). In addition, operators know if users are accessible ('presence'), and whether they are heavy users of BitTorrent or exhibit other network-intensive behaviors. Knowledge of these behavioral data points gives an operator the opportunity not only to market targeted or even personalized services and service packages to its users, but also to provide information to other businesses that can benefit (subject to privacy laws).

3. 4 Operational strengths:

Operators are experts at hiring, training, and moving to exactly the right place, technicians who can perform complex tasks to plan, add to, configure and maintain a complex network with a vast array of services – with very high quality. They have spent more than USD30 billion per year for the past 15–20 years on buying or building BSS and OSS to improve efficiency, increase service quality, and speed up the introduction of new services. Few other industries have invested as much. Operators know how to build, operate, and maintain data centers – keeping the computers powered, cooled and running efficiently, while ensuring software is up-to-date and resolving any operational issues. Any provider of cloud-based services such as IaaS, PaaS or SaaS would need this knowledge, putting telecoms operators in a strong position to provide such services. Telecoms operators know how to define, offer, implement and support complex services via self-service, stores, kiosks, web and customer service representatives, providing a good operational base for any ecommerce service.

Operators must use their established strengths and add new competencies: To move into new digital economy markets, operators must work out both how to use their existing strengths and what new competencies are required. Many of the new services make good use of the operators' current core competencies, although many require new competencies to be added.

Operators must make big decisions about how and where to move into new digital economy services: Moving into new digital economy services will require operators to make many major decisions, including the following.

3.4.1 Which services should the operator provide?

To fuel growth, operators will probably have to launch a number of new digital economy services, not just one. Questions include which services and the length of time for which investment will be required.

3.4.2 How should the operator enter the digital economy market?

Operators have three major options here.

- Become a digital economy service provider in that service themselves, using their own competencies.

- Partner with another company, perhaps via a white-label arrangement. Several operator forays into mobile commerce are using this model.

- Provide the B2B2C infrastructure for other companies to enter the digital economy space in their markets. This option is the most radical, but represents, the largest opportunity for CSPs. In this case, the operator would provide not only the communications channel part of the value chain, but also services such as billing, advertising, customer support and installation. Its B2B2C customers would not have to invest in their own infrastructure to try to compete (in their niche) with the leaders in the digital economy field – the 'Magic five' of the digital economy, Amazon, eBay, Facebook, Google and Twitter – and all the others entering the space.

3.4.3 Where should the operator try to become a digital economy services provider?

Operators must decide between providing services worldwide or just in their home markets, and, for B2B2C, whether to provide services to businesses worldwide. Some operators have already launched digital subsidiaries, and we will track further investments as the science fiction writer William Gibson has remarked, "The future is already here, it's just not evenly distributed." Operators such as Deutsche Telekom, SingTel, SK Telecom and Telefónica have created 'digital subsidiaries' to increase digital service revenue. Services such as digital advertising, local content, gaming, cloud computing services, online back-up, home and office security, e-health, electronic marketplace and mobile education are all being investigated, or are already implemented. These leading-edge CSPs are already each investing about USD1 billion dollars per year.

4 Trends in OTT Communication Service

Players from across the mobile value chain are displacing operators as the sole providers of communication services
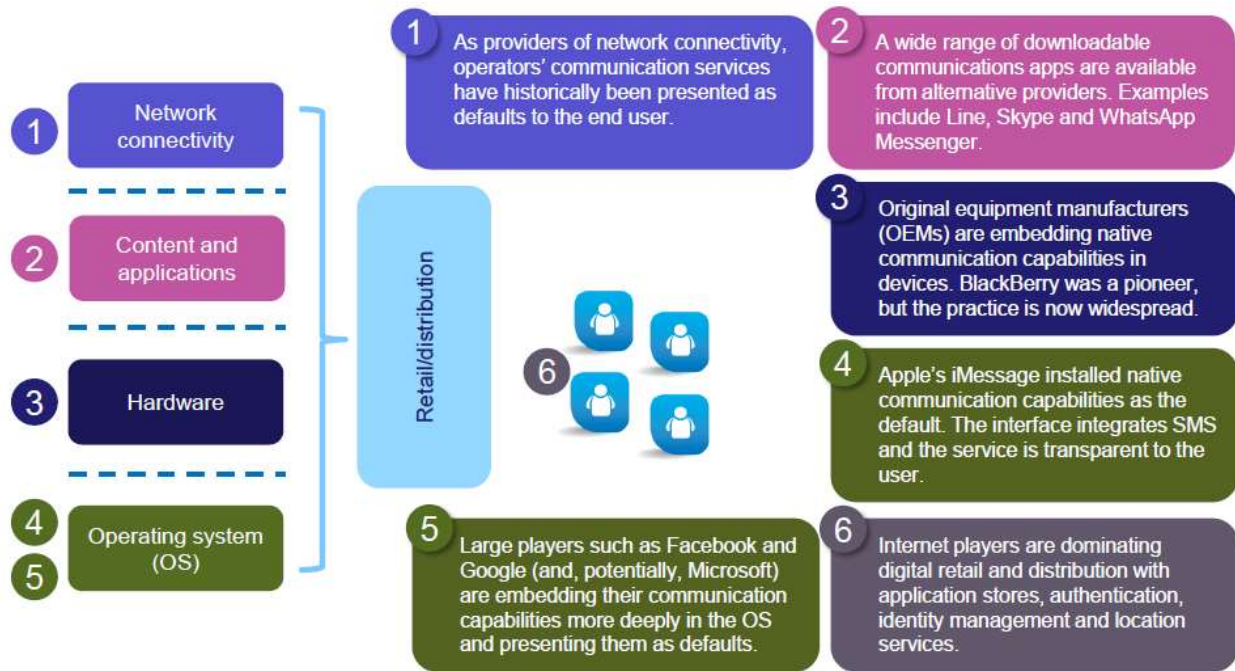
Figure 3 OTT Value Chain

4. 1 Communication Service and Indirect Business Models

Technological enablers and widespread adoption of mobile Internet access have lowered the barriers to entry in communication services markets.

- Major Internet players have identified opportunities for market disruption and have entered adjacent markets, including communication services. These services are expected to complement the core business rather than to be major drivers of revenue growth.

- Specialist start-ups have driven innovation in feature sets and supporting business models. The ongoing viability of many of these business models has been a significant source of speculation, but several players have emerged with sizeable user bases and/or profitable businesses.

The effects have been particularly pronounced in the messaging market where the cost base required to provide a service has been dramatically lowered. A service such as WhatsApp Messenger can run on operating costs in the tens of cents per subscriber per year. A viable business is therefore possible on annual ARPU of less than a dollar.

Many of the services available do charge directly for communication features, but the trend has been towards indirect business models that monetize the context for communication rather than the discrete communication itself.

4.1.1   Different Business Models in OTT Communication Service Market

Business model	Description	Examples
Advertising	Services funded by viewing advertisements or the collection of data to sell to advertisers	Facebook, Google, Kakao, Line, Pinger, Yuilop
Hardware	Services add value to the device and promote market presence within a segment defined by device ownership	Apple, BlackBerry, Nokia, Samsung
In-app purchases/ content	Users can purchase extra features such as stickers or download content such as games	Kakao, Kik, Line, Tango, Tencent (WeChat)
Software licensing	Services can be bundled with hardware or offered on a white-label basis	Genband Ireland (fring), Microsoft/ Skype, Vopium
Subscription	Recurring charge either for basic service or additional features	Microsoft/Skype, Viber, WhatsApp
Unit pricing	Revenue derived from off-net calls and messages or terminating incoming calls	Microsoft/Skype, Viber

Figure 4 OTT Business Models

4. 2 Comparison of communication services and supporting business models

Player	Core business	Feature set					Communications business model
		Voice	**Messaging**	**Video calling**	**Location**	**Social**	
Apple	Hardware	●○○○	●●●○	●●●●	●●○○	●○○○	Indirect
Facebook	Advertising	●○○○	●●●●	●●●○	●●○○	●●●●	Indirect
Google	Advertising	●●●○	●●●○	●●●○	●●●○	●●○○	Indirect
Microsoft/Skype	Software licensing	●●●○	●●●○	●●●●	●○○○	●○○○	Moving to indirect
VoIP/IM apps	Communication services	●●●○	●●●●	●●○○	●●○○	●○○○	Direct
Social messengers	Content, advertising	●●○○	●●●●	●●●○	●●○○	●●●●	Indirect
MNOs	Communication services	●●●○	●●○○	○○○○	○○○○	○○○○	Direct

Key: ●●●● = Strong; ○○○○ = Weak.

Figure 5 Major players and their competencies

As communication service feature sets broaden, operators' traditional portfolios look increasingly weak

Messaging services are already used by more than half of smartphone owners worldwide, and adoption is growing rapidly

BBM and iMessage are the best-established platform-specific messaging services, but cross-platform apps have risen in popularity as smartphone penetration has risen. Where smartphone penetration of the population is high, the market is typically dominated by a single app. The most popular cross-platform apps are Facebook Messenger, KakaoTalk, Kik, Line, Skype, WhatsApp Messenger and WeChat.

Volumes of messages associated with messaging apps are much higher than traditional SMS services. When WhatsApp recorded outgoing volumes of 10 billion messages in a single day in June 2013, this equated to over 30 messages per person per day. An estimate suggests that just fewer than 2 trillion WhatsApp messages were sent in 2012. The total number of SMS messages sent worldwide was 6.6 trillion in 2012.

In 2013, a relatively low proportion (15%) of the world's smartphone owners actively use OTT VoIP and IP messaging services, but this varies significantly by region. Some countries in

developed Asia–Pacific (DVAP) and the Middle East and North Africa (MENA) have very high take-up levels.

Skype is the leader in the VoIP market, but is also a major player in messaging, with an estimated 276 million active users at the end of 2012 and total outgoing voice traffic of just under 500 billion minutes in 2012. However, its control of the market is weakening as users migrate to smartphones and, to a lesser extent, tablets.
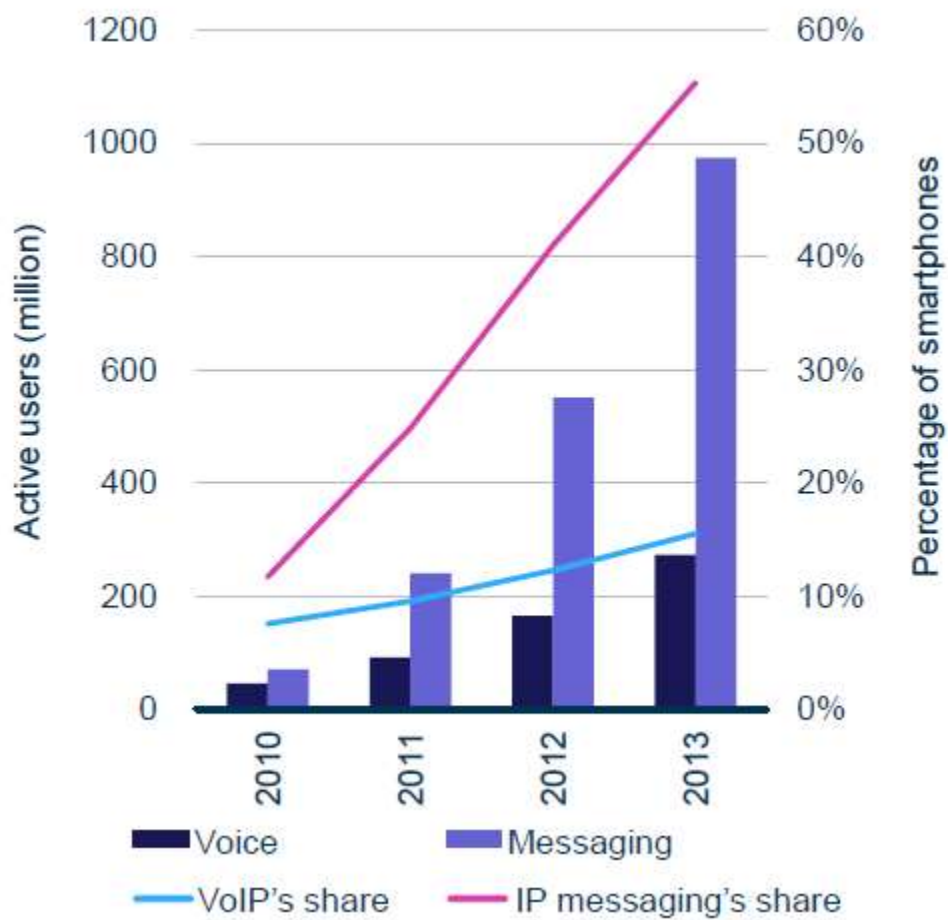
Figure 6 Smartphone penetration of OTT VoIP and IP messaging services,

5 Profiles of Major OTT Players

Below is a list of non-operator communication service players, specifying the service they provide, their quarterly revenue (for Q3 2013) and their major customer base

Company	Service	Quarterly company revenue (3Q 2013)	Customer base
Google	Google Hangouts	USD14.9 billion	Almost 1 billion Android activations at July 2013
Facebook	Facebook Messenger	USD2 billion	874 million mobile monthly active users (MAUs) at June 2013
Apple	iMessage, FaceTime	USD37.5 billion	400 million iPhones sold at September 2013
WhatsApp	WhatsApp Messenger	N/a	350 million (active) at September 2013
Microsoft	Skype	USD18.5 billion	280 million (active) at February 2013 (all platforms)
Tencent	WeChat/Weixin	USD2.5 billion	272 million (active) at September 2013
Line	Line	USD100 million	260 million (registered) at September 2013
Kakao	KakaoTalk	USD45 million (annual in 2012)	Over 100 million (active) at July 2013
BlackBerry	BBM	USD1.6 billion (quarter ending August 2013)	80 million (active) at October 2013

Figure 7 OTT players and Revenue

5. 1 Google

Google has revamped its offering with Hangouts and is integrating communications capabilities ever deeper with Android

Overview
Since Google launched Hangouts in May 2013, the service has been the focus for a number of previously disparate communications initiatives, including Google Voice, Google Talk and various Google+ communications tools.

Android 4.4 (KitKat) integrates Hangouts at a deeper level than previous apps. In the Nexus 5 build, Hangouts replaces the standard 'Messages' icon as the default service.

The app is available for Android and iOS as well as being integrated with Gmail and the Chrome browser.

Features
- Group chat and emoticons.
- Video streaming and free video conferencing.
- Limited calling features.
- Cloud storage and synching across devices.
- Location and picture sharing.
- SMS and MMS integration.

Pricing/business model
No direct charges for the service; advertising accounted for more than 85% of Google's revenue at 2Q 2013.

User rating

Hangouts: 3.4* (Android)

3.0* (iOS, UK and USA).

5. 2 Facebook

Facebook is making aggressive moves in mobile – communication services are a major focus

Overview

Facebook has evolved its core feature set from a web-based social networking site to embrace a range of real-time communication services.

Facebook is driving penetration of its standalone Messenger app by dropping the requirement for Facebook login, partnering with operators, and extending its services via alternative bearers such as SMS and USSD.

Facebook Home is an Android skin that claims to 'put people before apps' by making social networking (and communication) the central experience on a smartphone.

Features

- Facebook Messenger is able to integrate SMS handling in Android.
- 'Chat Heads' overlay allows users to receive their Facebook messages while using other apps.
- VoIP calling was added to the iOS version in January 2013 and to Android in April 2013 (in some countries only).

Pricing/business model

Facebook does not charge for its communication services; over 90% of Facebook revenue is derived from advertising.

User rating

Messenger:

4.5* (Android)
4.5* (iOS, UK and USA)

5. 3 Apple

Apple is integrating its own communication services with the iPhone, thereby dis-intermediating the operator

Overview

Apple dominates the high-end smartphone market, with a 21.5% share of smartphone shipments worldwide in 2012.

When it launched the iPhone in June 2007, Apple tightly integrated its hardware with its operating system and content from the iTunes Store. It then started integrating more services within its ecosystem: FaceTime was first introduced as a video calling app for the iPhone 4 in February 2011 and voice calling was added in September 2013; iMessage was launched as part of the iOS 5 operating system in October 2011.

Features

- iMessage is a proprietary messaging application for Apple devices, which incorporates SMS handling.
- FaceTime is a video and audio calling app for Apple devices.

Pricing/business model

The free communication services form part of the wider ecosystem of content and apps that add value to, and differentiate, Apple devices.

User rating

No rating, because iMessage and FaceTime are integrated within recent versions of iOS and are no longer regarded as separate apps.

5. 4 WhatsApp

WhatsApp is focused on providing a specialist messaging service to a large installed base

Overview

WhatsApp Messenger was the first cross-platform app to use the phone number for authentication and to easily integrate users' contacts. It was launched in 2009. It rapidly became the dominant player in messaging in many countries, particularly in Western Europe. Users sent more than 10 billion messages in one day in June 2013.

The app is available for Android, BlackBerry, iOS, Nokia S40/S60 and Windows Phone.

Features

- Focused on core messaging and group chat services.
- Media sharing, including video and location.
- Audio messaging introduced in August 2013.
- Stickers are available via third parties.
- Some industry observers feel that the feature set is falling behind that offered by 'social messengers' such as Line.

Pricing/business model

The service is free for the first year, then USD0.99 per year. The company is profitable at the time of writing.

WhatsApp has stated that it will not use advertising or offer games as revenue generators

User rating

4.5* (Android)

4.0* (iOS UK)

4.5* (iOS USA).

5. 5 Skype

Skype retains its position as market leader in VoIP

Overview

Launched in 2003, Skype is the most established web-based VoIP provider. It now offers video calling and messaging features. Microsoft acquired it for USD8.5 billion in 2011.

Skype is trying to leverage its success in the desktop PC environment as it expands across devices, notably mobile.

Microsoft's acquisition of Nokia's consumer devices makes closer integration with Nokia handsets likely. The user interface was redesigned for mobile clients in 2013 with messaging brought 'center stage'.

Features

- Free on-net video and voice calling.
- Low-cost calling and SMS to mobiles and landlines.
- Messaging, file sharing and group chat.

Pricing/business model

Unit-based charging model for off-net calls and SMS (charged at competitive rates).

Also offers a subscription model for premium features such as multi-party video and screen sharing.

Advertising is used in some countries and software licensing to OEMs is another revenue stream.

User rating

4* (Android)

3.5* (iOS UK and USA).

5. 6 WeChat

WeChat is driving international growth with high-profile advertising campaigns

Overview

WeChat is the international brand for Weixin, a mobile 'social messaging' service launched by Chinese Internet portal Tencent in January 2011. The service complements other services offered by Tencent, such as its QQ instant messaging (IM) service.

It aims to become a major player worldwide and has a reported overseas marketing budget of USD200 million. It is running high-profile advertising campaigns with footballers (Spain) and film stars (India).

Features

- Integrated communications app, offering free texting, messaging, video calls and photo sharing.
- Incorporates some novel ways of connecting with other users, such as 'Shake' which enables users to connect by shaking their phone, or 'Drift bottle', a virtual version of the message in a bottle.

Pricing/business model

WeChat uses the freemium business model, with free basic services, but paid-for additional services, such as stickers (emoticons) and in-game upgrades. Tencent added mobile payments in August 2013.

User rating

4.3* (Android)

4* (iOS in UK and China).

5. 7 Line

Line is an example of the new generation of 'social messengers' that are transforming messaging and social networking

Overview

Line is one of the leading 'social messaging' apps to emerge following the success of first-generation apps such as WhatsApp Messenger. The service is built around social features (for example, timeline and home page) and gaming.

The service is quickly expanding outside its domestic market in Japan. It has launched major advertising initiatives in Indonesia, Taiwan, Thailand, Spain and the UK. It uses big budget advertising and brand ambassadors (such as Sir Paul McCartney in the UK) to recruit new users.

Features
- Free on-net voice and video calling.
- Group chat and calling, and emoticons.
- Location and media sharing.
- Additional apps such as camera, birthday cards etc.

Pricing/business model

The service is free, but users have many opportunities to make in-app purchases.

Of USD100 million revenue in 3Q 2013, approximately 60% was derived from gaming and 20% from stickers.

User rating

4* (Android)

3.5* (iOS UK)

2.5* (iOS Japan).

5. 8 KakaoTalk

KakaoTalk successfully monetizes its communications with a wide range of complementary premium services

Overview

Mobile technology firm Kakao launched KakaoTalk in 2010 and had over 100 million registered users in July 2013, most of whom are in its domestic market of South Korea.

New features are typically delivered as separate apps with links to KakaoTalk.

KakaoTalk has been expanding internationally, particularly in other Asian countries such as Indonesia, Japan, Malaysia and the Philippines.

Features

- Communications app, offering free calls, texting and messaging, as well as photo and video sharing.
- Other features include 'Playing Game'; 'Choco', a cyber-currency for premium content and services; 'Plus Friend', which enables users to connect with brands and celebrities; and Gift Shop for digital content.

Pricing/business model

The free communication services are monetized through games (just over two-thirds of its USD45 million revenue in 2012), advertising

User base

4.4* (Android)

3.5* (iOS in UK)

3.0* (iOS in South Korea).

5. 9 Black Berry Messenger

BlackBerry continues to be a significant force in some countries and hopes that opening BBM to other platforms will revive the service

Overview

BlackBerry's BBM was a pioneer in the messaging market, offering a proprietary service to BlackBerry users and driving device take-up among young people.

Despite a number of high-profile outages, the service retains a reputation for reliability and security. One of the enabling features is that the service requires a personal identification number (PIN).

The service has suffered from BlackBerry's poor performance in the smartphone segment and increased competition from alternatives. A BBM downloadable app was made available on Android and iOS in October 2013, in a bid to revive its fortunes.

Features
- Unlimited messaging with real-time message status notifications.
- Voice and video calling is offered on some BlackBerry devices.
- The multi-platform app is limited to messaging but additional features are expected.

Pricing/business model

The original service aimed to differentiate and add value to BlackBerry devices.

User rating

4.2* (Android)

2.5* (iOS).

6 Response to OTT by Operators – World over

There are five broad level strategies that have been adopted world over as a response to the emergence of OTT

Strategy	Objectives	Examples
Block OTT services	• Prevent OTT becoming mainstream • Potentially gain value from high-end bundles	• EITC (du), Etisalat • Orange, T-Mobile
Stimulate usage	• Defend legacy communication services • Buy time	• Orange, SingTel • T-Mobile, Telefónica, Vodafone
Partner with OTT players	• Appeal to attractive market segments • Support core data business with move to bundles	• 3 Hong Kong, DiGi Telecommunications (Malaysia) • Etisalat, Globe Telecom, Nawras • Mobily, Telkomsel, Verizon
Launch IMS-based services	• Improve operator portfolio • 'Retain relevance' as a communications provider	• MetroPCS, Orange, SK Telecom • T-Mobile, Telefónica, Vodafone
Launch 'telco OTT' services	• Differentiate own services • 'Retain relevance' as a communications provider	• Bouygues, LG Uplus, Orange • Rogers Wireless, T-Mobile • Tele2, Telefónica

<div align="center">Figure 8 Strategies to cope with OTT</div>

6. 1 Blocking OTT

Services is largely counterproductive but many stakeholders persist with this approach nonetheless

There are two main types of blocking:

- Complete ban on OTT services on cellular networks, either mandated by the regulator or imposed by operators.
- Selective blocking where access to OTT services is only permitted on certain tariffs or for an additional fee. Throttling may also be used to restrict usage. Many European operators adopted these practices but they are falling out of favor following attention from regulators.

	Skype	**Viber**	**WhatsApp Messenger**
China	Modified version only	Occasional blocks	Permitted
Egypt	Illegal	Under review	Under review
Saudi Arabia	Under review	Illegal	Under review

Figure 9 Blocking of OTT

The desired objective is to limit take-up of OTT services, particularly VoIP, but efforts are largely counterproductive because they:

- alienate (valuable) customers, lower net promoter scores, and increase likelihood of churn (where relevant)
- drive people toward workarounds including the use of proxies and VPNs, often in the 'grey' market – this is very common in some Middle Eastern countries where international calls messages account for a relatively high proportion of the total
- Potentially results in net neutrality regulation.

A more effective long-term approach is for operators (and regulators) to address the drivers that attract people to alternative services, notably pricing.

6. 2 Stimulate Usage

Operators can use pricing levers to limit the appeal of alternatives, but the window of opportunity is closing

With the important exception of the Wi-Fi environment, operators control the main pricing levers in mobile services. As tariffs rebalance towards data, the incremental costs for using voice and messaging services decline and, in many cases, approach zero. Operator voice and messaging services in many countries are already marketed as 'free'.

Where these market conditions prevail, the price motivation for adopting OTT alternatives is taken out of the equation. France is a good example of this market environment. SMS usage levels are the highest in Western Europe, supported by the widespread availability of unlimited bundles. It also has very low penetration levels of IP messaging services and some MNOs in France see little threat from the likes of WhatsApp.

Strong usage levels of operator services offer a cushion against substitution – the more established the usage patterns, the harder the service should be to displace. It also offers operators a strong brand presence and platform from which to migrate customers to their own next-generation communication services.

However, timing is crucial. Operators in France have been reducing their prices for a number of years. Price reductions in Spain arrived too late to have a material impact on SMS usage that was already the lowest in Europe.
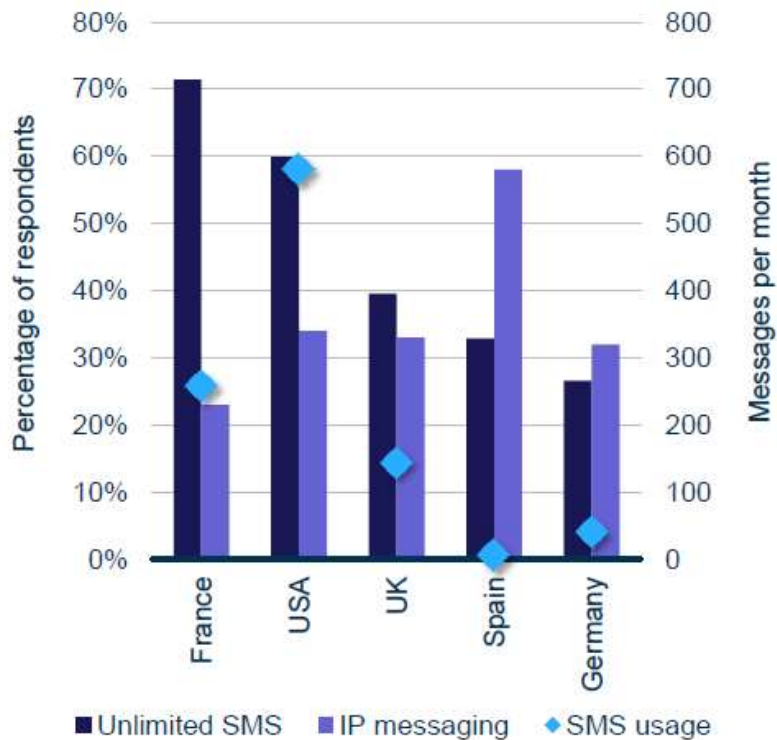

Figure 10 Messages per month on SMS and IP Messaging

6. 3 Partnership

Partnership models are increasingly common, but the motivation is stronger among those operators with less to lose in legacy services

Many operators have partnered with social networking providers such as Facebook to promote the adoption of mobile Internet services. Facebook has long emphasized the messaging capabilities of its mobile service and, as the popularity of communications apps has risen, the partnership model has been extended to include these services.

WhatsApp has proactively established relationships with MNOs (mobile Network Operators) such as 3 (various countries), DiGi, Nawras, Mobily and SingTel. Other messaging providers have similar deals in place. The partnerships are normally at marketing level only with the MNO trying to appeal to particular market segments, typically by zero-rating usage of the app(s).

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VoIP providers are also working with operators. Skype had what amounted to an on-net calling promotion with Hutchison 3G UK (Three) as early as 2009. It has also had relationships with Qtel (now Ooredoo), Telkomsel and Verizon Wireless. Viber is also very active in partnering with operators.

Many of the operators that have embraced the partnership model are smaller players, aiming to gain market share by targeting younger data-centric users, and with less of a legacy position in voice and messaging.

A move towards a partnership model also supports efforts to move to a heavily bundling-focused strategy (which will evolve into a data pipe with usage caps).

Operator	Partner	Details
3 (Hong Kong)	WhatsApp	Roaming package includes unlimited usage
DiGi Telecommunications (Malaysia)	Skype plus others	Unlimited Skype calling plus 100 SkypeOut minutes
Etisalat (Egypt)	Facebook	Free or discounted access to Facebook Messenger
Globe Telecom (Philippines)	Viber plus others	GoUnli prepaid tariffs include unlimited usage
Mobily (Saudi Arabia)	WhatsApp	Exclusivity, zero-tariff usage in some bundles
Verizon Wireless (USA)	Skype	Pre-installed on some devices, international calls via Skype

Figure 11 Partnerships for OTT

6. 4 Telco OTT

Many promising initiatives in next-generation communications have been proprietary 'telco OTT' services

Several operators have pursued proprietary responses to the changes taking place in the communication services market. Often these initiatives have been driven by a separate 'digital' innovation department or unit set up to address the new wave of competition from Internet players with universal reach. Operators with digital units include Etisalat, Orange, SingTel, Telefónica and Telenor.

One of the challenges faced by these initiatives is an organizational one – organizing the relationship between the innovations function that is responsible for developing the service and the local operations responsible for managing the portfolio, pricing and customer services.

Thus far, 'telco OTT' initiatives have usually been more focused than the industry-wide IMS-based initiatives. They typically target specific operator weaknesses or potential opportunities to differentiate. The flipside of this is that many are tentative ad hoc initiatives and may not be sufficiently far-reaching.

Proprietary services offer potential gains in terms of time to market, although in practice these gains are unlikely to match the headline claims about an impressively small number of days of development time. The availability of a number of white-label services and technology-sharing initiatives certainly broadens the options for operators that are less advanced in terms of innovation.

Proposition	Objective	Examples
Voice over Wi-Fi	- Addresses dissatisfaction with international and roaming prices - Addresses indoor coverage issues	TU Go (Telefónica), Libon (Orange)
Multi-device access	- Exploits operators' unifying role as managers of the network - Extends operator role in tablets - Reinforces the mobile number	TU Go, One Number (Rogers Wireless)
Advanced calling features	- Strengthens core proposition to compete against alternatives (for example, Google Voice, Hullomail)	Libon, One Number
IP messaging	- Addresses need for a next-generation messaging service - Drives associated data usage	Libon, YiChat (China Mobile)

Figure 12 Major propositions addressed by 'telco OTT' initiatives

After experimenting with pure OTT models, operators are now recognizing the need for the service to add value to the customer base. In August 2013, Telefónica announced that it would discontinue its TU Me service and instead focus on the TU Go service in association with its national operating companies. Similarly, the focus for Orange's Libon is increasingly to offer the service in partnership with opcos. The pilot project was with Sosh, Orange's digital sub-brand in France, but the model is being rolled out more extensively. In both cases, product development remains centralized, but commercial decision-making is local.

The increased local focus has also meant that operators have to reconcile the various ongoing initiatives in their organizations and align them with specific in-country strategies. Investment in next-generation service initiatives needs to be accountable and we are seeing increased interest in

specific measurement of success alongside other local KPIs, whether by limiting substitution to alternatives, reducing churn or by improving net promoter scores.

In some cases, telco OTT projects are coming into conflict with RCS initiatives, particularly in markets where VoLTE is under active consideration. There is potential to offer a universal, interoperable baseline RCS service while also offering a differentiated rich communications experience to (a subset of) a specific operator's customer base. Whether the industry is capable of realizing this vision remains to be seen.

7 Market Outlook

OTT messaging services are transforming the user experience and are expected to cement their dominance of the messaging market

IP messaging is turning out to be a 'killer app' for the mobile Internet. OTT messaging services will continue to grow strongly from 2013 to 2018. The number of users on smartphones are to increase from approximately 1 billion in 2013 to nearly 3 billion in 2018.Growth will come from the device/operating system (OS) providers; specialists such as WhatsApp, which has demonstrated demand for a low-cost cross-platform service with a good user experience; and social messengers such as Line and WeChat, which have made their global ambitions clear.

Usage volumes associated with messaging apps are much higher than traditional SMS services. When WhatsApp recorded an all-time high of 10 billion outgoing messages in a single day in June 2013, this equated to more than 30 messages per person per day. Outgoing messaging volumes for IP-based services on smartphones overtook SMS in absolute terms in 2012. IP-based messaging volumes will surpass SMS on all mobile handsets in 2013. By 2018, SMS is to account for just 4% of smartphone messaging traffic and 9% across all mobile handsets.
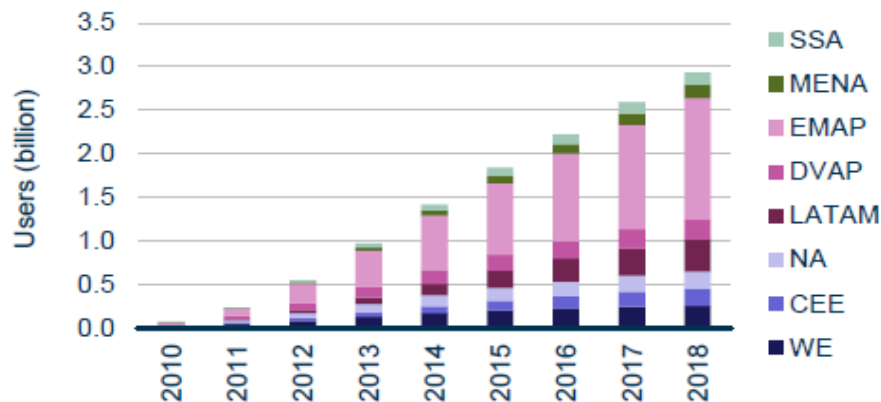

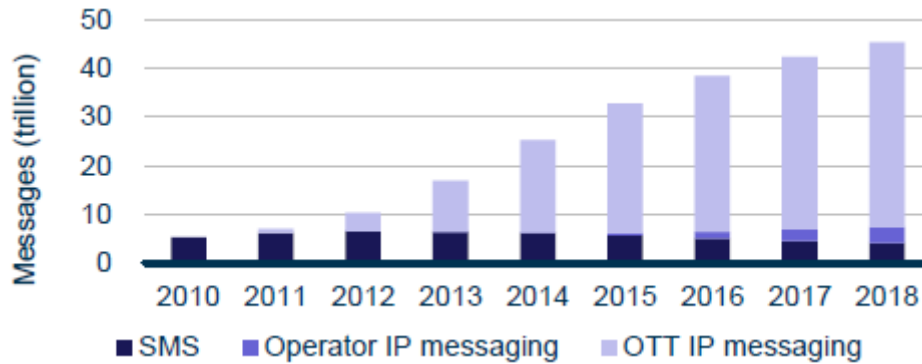Figure 13 Active users of OTT messaging services on smartphones

Figure 14 messaging traffic originated on mobile handsets

Operators must not be complacent in the voice market – they need to address vulnerabilities and improve the user experience

Mobile voice services will diminish in importance for many users over the next few years as alternative modes of communication rise in prominence, notably the many text-based and visual alternatives. Nevertheless, demand for the service will continue to be significant and the average number of minutes of use is not expected to fall substantially.

Operators currently control the native dialer on handsets but this should not be taken for granted, as we are seeing in the messaging market. OEM and OS players have not yet made aggressive moves into the voice market, but many of them are adding VoIP capabilities to their offerings. If operators are to limit substitution to alternatives they need to retain their position as default providers in the minds of consumers. To maintain this position they need to address the following.

7. 1 Price vulnerabilities

Price is to continue to be the main driver in the voice market. Most operators will use pricing levers to ensure that their voice services remain relevant to most smartphone users. Special attention needs to be paid to international calls and roaming, where prohibitive pricing is an incentive for customers to seek alternatives. Many operators (and regulators) are already addressing these areas and revenue loss needs to be traded off against defending market share.

7. 2 Voice quality and user experience

As LTE becomes more widespread, operators will need to work hard to differentiate their service from OTT alternatives, many of which are able to offer quality improvements using codecs such as Opus. Most operators cannot afford to cede more reputational ground on core communication services. VoLTE offers operators the tools to make improvements in key areas in which they can differentiate such as call set-up times and battery usage.

Operators also need to improve the user experience by offering features such as multi-device support, cloud address books, voicemail transcription etc. Competition in the segment demands consistent improvements to what has been a relatively static product set.

7. 3 Expanding the use cases for voice

Text-based communication services have expanded to occupy a wide range of use cases such as Twitter broadcasts and group chat. The same is not true for audio communication services, which remain stuck in a circuit-switched paradigm. As barriers to entry are lowered, operators are advised to be active participants in the expected innovation rather than bystanders (as was the case in messaging). Support for click-to-call in a world of mobile maps and m-commerce is a good start.

The poor outlook for operators' consumer messaging services suggests that they should focus on other opportunities

The weakening role of operators in the messaging value chain suggests that it is only a matter of time before SMS services are relegated from their current exalted position on smartphones. OEMs and OS providers are moving aggressively into the messaging market and it will be increasingly commonplace for alternative messaging services to be set as default.

The ubiquity of operator services is often cited as a key strength or unique selling point (USP). However, in messaging, intensive usage tends to be clustered within relatively small user groups and many users flit between a number of different services. Incompatibility is solved by an easy download. In this fragmented market, operators could potentially be left as the third-rate fallback option, behind native capabilities provided by the OS (Android, iOS or Windows Phone) and behind the large-scale cross-platform apps.

As operators decide whether or not to seriously compete in messaging, they should focus on the following:

7.3.1 Support for a broader consumer proposition built around voice and video.

Operators will struggle to compete against the major Internet players and niche providers of messaging services. Instead, they need to focus efforts on supporting services where they are able to differentiate and derive revenue. Faced with a choice between a USD15 data-only plan with do-it-yourself (DIY) voice and a USD20 data plus (truly) unlimited voice plan, most will opt for the latter

7.3.2 Improving the feature set available to the B2B, B2B2C and wholesale sectors.

Given the limited opportunity in the consumer retail space, operators should focus their efforts on using their network assets and brand strengths to ensure that they are well positioned to address opportunities in other segments. Working with partners and fostering ecosystems is critical to success in the broader communication services market.

7.3.3 Cost reduction.

Competition from major players with extensive financial resources and indirect business models further underlines the need for operators to focus on cost reduction. Messaging revenue is very vulnerable.

7. 4 Area of Focus

Technology strategies should support these areas of focus.

When preparing investment cases, operators need to properly assess the value of 'retaining relevance' in communication services

Operators in developed markets have fixated on monetizing mobile data as the main source of revenue growth. In pursuit of this, they have, in the most part, neglected their core communication services while allowing Internet players to gain ground in retail and distribution.

Mobile operators are accustomed to making investment decisions on the basis of likely returns from a growth opportunity. Given that voice and messaging revenue is in decline in many countries, the current investment cases for communication services generally fare badly. But when assessing the value of 'retaining relevance' in communication services, investment decisions should not view these services in isolation. Some of the value is in supporting other parts of the business.

Connectivity: Communication services offer an additional dimension to price tiering, and can help slow commoditization and therefore help maintain ARPU.

Touch Points: Important retail and distribution touch points such as identity management, authentication, billing, location, etc.

When assessing the value of retaining relevance, it is important to consider some of the new KPIs such as impact on churn reduction and net promoter scores etc. Operators will have some opportunities to generate incremental revenue but, importantly, also to defend key links in the value chain.

Area of value chain	Operator position	Comments
Communication services	Weakening	• Lagging behind in IP-based innovation • Strong legacy position in voice
Connectivity	Strong	• Monopoly on connectivity though Wi-Fi is internal disrupter • Potential for commoditisation
Retail/distribution	Weakening	• Mobile number challenged by email and other IDs • Alternative means of authentication now available (for example, Facebook) • Internet players building billing relationships • Operators are stronger in developing markets

Figure 15 operators position in key areas of the mobile value chain

The revenue outlook is uncertain, but the platform business model offers welcome wholesale opportunities for operators

Another aspect of the investment case for next-generation services is the revenue potential associated with platform business models. Revenue opportunities are often unspecified – instead operators plan to act as enablers, allowing third parties to use their assets to develop and offer new services.

The existing use cases for voice services are limited. New technologies such as WebRTC promise to open communication services to innovation. However, in communication services, the market for wholesale services has not yet been configured. Operators are hoping to become the de facto platforms but attempts to standardize APIs across the industry have not been successful thus far.

App providers, such as Facebook and Google, but also Kakao and WhatsApp, have sufficiently large user bases to offer APIs directly to developers. At the other end of the scale, intermediaries such as Voxeo and Twilio act as intermediaries between operators and developers offering packaged APIs. In the billing market, which is much more firmly established, this function is offered by Bango and Syniverse among others. Operator initiatives have not met with much success.

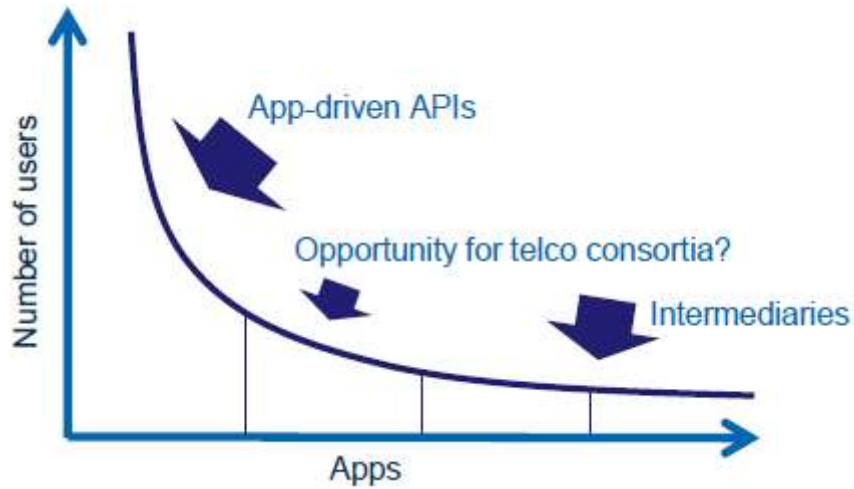Figure 16 Distribution of apps by number of users and potential opportunities for API providers

Operators have the opportunity to partner in the B2B and B2B2C sectors in order to target particular verticals. However, following experiences in billing, it looks likely that the most viable opportunity for operators to engage broader developer communities is through national telco consortia such as with the UK m-commerce platform Weve.

8 Analysis of Key internal & external factors

8. 1 Performance and Market Position

Telenor Norway has over the last decade been among the best performing European incumbents, and has a strong market position in most customer segments, both within fixed- and mobile services. The total revenue market share is currently 51% which makes Telenor by far the largest player in the Norwegian telecom and TV markets. The main competitors are Netcom (10%), Tele2 (10%), Lyse/Altibox (7%) and Get (8%), which all are either mobile- or fixed only players.

In 2013, Telenor reported total revenues of 25.1 BNOK, with mobile revenues amounting to 13.3 BNOK and fixed line revenues amounting to 11.8 NOK. While mobile revenues have been fairly stable around 13 BNOK, fixed line revenues have declined with approximately 1.2 BNOK over the last four years.

Telenor Norway's total mobile subscriber market share is 50% across all brands (Telenor, djuice, Talkmore and Dipper), with the business market being a stronghold. Netcom and Tele2 are the two major competitors. The Norwegian mobile market is at the forefront with the latest LTE technology being deployed and it is already at a data-centric business model where voice and SMS is included.

Within fixed line services, broadband connectivity is the largest and most important service category. Telenor, including its Canal Digital brand, is the largest player in the Norwegian fixed broadband market, but market shares have declined from 51% in 2006 to 45% in 2013.

In addition, Telenor holds a strong TV market position with 46% market share in annual linear cable-TV revenues with its Canal Digital brand, and dominating the declining fixed voice market with 63% market share.

8. 2 Macro-economic development

The Norwegian economy has shown stable growth during the last 2-3 years. (SSB, 2015) This development is expected to continue as SSB estimates a slightly increased GDP growth rate in 2016-17. The growth will be driven mainly by household spending.

	2013	2014	**2015**	**2016**	**2017**
GDP (% per yr)	0.6	1.9	**1.7**	**2.4**	**2.3**
HH spending	2.1	2.1	**2.9**	**3.1**	**3.2**
Public spending	1.8	2.3	**2.3**	**2.4**	**2.0**

Population growth is forecasted to be high, around 55- 60' per year, while household growth will be around 28' per year. The majority of population growth (around 65-70%) will be due to net migration from abroad. With both volume and spending showing solid growth, the macro climate is favorable. (SSB, 2014)

8. 3 Mobile market

We expect the mobile telecom market (NPT definition) to show increased growth rate for the strategy period. The growth is driven by volume increase (SIM growth) and continued data growth. There will be uncertainties regarding market consolidation, however a consolidation will in itself create a more stable and visible market.

Furthermore, there are attractive growth opportunities outside the traditional Telco market as defined above, such as OTT entertainment services (incl. TV), business cloud, system integration, and financial services. The internet economy has shown a growth rate around 15% per year up to now, where several of the largest players (such as Facebook and twitter) have shown growth rates of above 40% per year. These services support the strong data growth, however they significantly limit potential for service creation (i.e. messaging services, content services).

8.3.1 Customers

We see the most important customer requirements in the mobile markets as:

- **The continued strong demand for speed and capacity** where we are - at all times. Coupled with the significant growth in digital time, this leads to a continued strong demand for mobile data.
- **The importance of trust:** The consequences of misuse of information are continuously growing as more sensitive data is used. Personalization without misuse of information will be key. Reliable access to telecom services (trusted supplier) will be ever more important.
- **Digital engagement:** The increase of digital channels, platforms and devices has produced a generation who is born "plugged in". Consumers become more knowledgeable and their requirements more complex, looking for a differentiated experience.

MAP segmentation is highly valued in the Mobile and Business divisions. Telenor Norway will update the B2C MAP to include Classic and Home in order to establish a common understanding of the consumer market.

In the Consumer market, MAP divides telecom customers into 6 segments: Performer, Traditionalist, Maximalist, Low Tech Hedonist, Cost focused and Young on Budget. The *Performer* cares about tailored offerings, advanced technology and good service, with the aim of making daily life as efficient as possible. High willingness to pay for added value. The

Traditionalist is focused on security, quality and good customer service. The *Maximalist* wants to get the most out of everything and sees him or herself as a trendsetter, using the newest gadgets and services. The *Low Tech Hedonist* is little interested in technology itself, but rather what you can do with it in terms of entertainment and social media. The *Cost focused* and *Young on Budget* are cost-constraint and have a more limited telecom spend.

With regard to fixed, additional segmentation approach are needed and mainly used today; geography, family situation, technology and infrastructure, multi versus single dwelling units and product.

In the Business market, there are 3 MAP segments: Performance, Solidity/trust and Price. The performance emphasizes values such as Excellence, Innovation and Loyalty. There is less concern for Experience and price. Solidity/trust emphasizes experience and solidity, as well as loyalty. Price and service competence are of less concern. The price segment emphasizes strongly the purchase cost. Integrity is also valued. There is less concern for excellence, loyalty and experience.

8.3.2 Competition

Consolidation: The mobile market is in a consolidation process, with the Teliasonera acquisition of Tele2 being the key component. We expect this acquisition to go through, with remedies. We see a continued fierce price competition from OneCall as Teliasonera will need to defend the OneCall market position. Uncertainty regarding the plans of ICE (which has acquired 800/900/1800 MHz spectrum in addition to current 450MHz operation) increases risk.

The battle for best network position gets tougher: Netcom, winning the 800 frequencies with coverage obligations need to build at least 98% population coverage by end of Q2 2016.

Netcom has offered 98% population coverage if they are allowed to acquire Tele2. Netcom is expected to speed up build-out and there will be a close race

B2B revenues under pressure: With B2B ARPU at a level around twice that of B2C, we expect more pressure on ARPU in the B2B market. The 4G speed, capacity and services offered in the B2C market provides a good value proposition for many businesses.

8.3.3 Technology

- **LTE A** will significantly increase performance in an evolutionary development towards 5G, offering capacity increasing features such as carrier aggregation and LTE 900.
- **Small cells** as supplement to the macro network will improve coverage and capacity. Indoor use of PICO Cells available from late 2015.

- **VOLTE (Voice over LTE)** is expected to be in the market during 2016, will be an enabler for developing pure 4G networks

This will continue to support a strong demand for mobile data. We expect strong mobile data growth in the strategy period, however with a reduced growth rate from 85% in 2015 to around 50% in 2017. The usage trends within both B2C and B2B driving capacity in the form of both volume and quality of services remain very strong.

8.3.4   Regulatory

Mobile access regulation has gradually become stricter over the last years. NPT has proposed both a stricter version of the current price regulation (margin squeeze model) on MVNO-access and national roaming and a stricter follow-up in mobile access regulation. This will reduce flexibility on both wholesale and retail level Telenor (the only regulated player).

The process towards one integrated EU telecom market continues, the main consequences will be within roaming and net neutrality.

8. 4 Internal capabilities

Telenor Norway has a highly qualified workforce, a comprehensive product offering and the best network infrastructure (mobile, core network), all of which provides a good starting point for continued success. However the internal complexity in infrastructure, systems, processes and organization built up over time is too expensive and has become an obstacle to future growth and development on the strategic priorities. These factors take time to address:

- Telenor Norway is perceived as bureaucratic and silo-oriented by employees, who want more transparency and empowerment.
- We have made some bold moves in outsourcing and partnering (Fiji, Star, Citius) but complexity makes it difficult to execute on multiple structural OE projects simultaneously. As we outsource increasing parts of our business, future OE savings will have to come from parts of the value chain that are outside Telenor.
- Changing business models, lack of product termination and competing channels has resulted in a business driven complexity. The required simplification will also need to be business driven.
- We have been good at developing leaders and have recently stepped up our expert track, but have not systematically been attending to development opportunities for all employees.

It is important for operators to understand where OTT apps are replacing operator communication services and where they are complementary, so operators can use unlimited bundles of voice minutes or messages to compete, or establish partnerships to share in the success.

In many cases these partnerships are in complementary, rather than competitive, areas. There are also numerous examples of telcos partnering with OTT VoIP and messaging providers, including the following:

- Skype's integrated service and billing arrangement with several carriers (e.g. AT&T, KDDI, and Verizon)
- Microsoft Lync's revenue-sharing arrangement with AT&T for a new enterprise communications package that includes Microsoft Lync instant messaging
- Facebook's zero-rate billing arrangements with carriers around the globe, plus an arrangement with AT&T to offer a Facebook phone
- Line's partnership with KDDI to provide its app as part of KDDI's "au Smart Pass" service bundle
- RedBox's revenue and customer information sharing service with Verizon, which offers integrated and co-branded RedBox/Verizon FiOS VoD and kiosk rental service.

To support these partnerships, operators are opening up network call management APIs and exposing and encouraging use of the mobile phone number as a primary identifier for OTT apps and services. In some cases, these capabilities, which include billing, location, presence, web search, voice to text and SMS, will be used to develop and introduce new next-generation OTT communication services and RCS communication services. Enabling and promoting carrier billing functionality for paid-for OTT services such as Skype credits, VoD services, enhanced messaging, or music subscriptions is another way in which operators are encouraging OTT and partner collaboration.

9 Recommendations

Operators should extend the availability of unlimited messaging plans, if they have not already done so. Operators' SMS revenue is vulnerable to substitution by OTT messaging apps. Many examples demonstrate this. The example of Turkey shows that high usage levels do not provide protection from this substitution. Operators need to manage the decline of this revenue stream and resist the desire to aggressively monetize high usage levels. Unlimited messaging plans are a key tool here.

Operators should consider the future feature set of their voice services. OTT services have made the greatest impact on the messaging market – voice is relatively unaffected so far. However, operators must not be complacent. LTE coverage makes cellular VoIP more viable and major players such as WhatsApp are adding voice capabilities to their services. Innovation will come to the voice market and, while the transformation is unlikely to be as profound as with the messaging market, operators must learn from the lesson of SMS and ensure that they proactively change pricing structures and the core feature set.

Operators and vendors need to formulate a coherent strategy for the evolution and interaction of native device capabilities and app usage. The industry is complacent about operators' role as a primary provider of communication services and takes the ownership of native device capabilities for granted. In fact, operators will probably need to compete for control of default communication services, albeit in defense of their position as incumbents. This will need a joined-up approach to native device capabilities and app-based services.

Operators should consider adding video calling capabilities to their portfolio. High penetration rates of video calling services suggest that users view apps, such as Skype and Viber, as more than just means to make free or low-cost calls. Rather they are viewed primarily as video calling apps. Operators need to consider this capability in their strategies to address substitution of voice usage to OTT apps. The launch of VoLTE services will give operators opportunities to differentiate with their own video calling propositions.

Operators should look for other revenue-generating opportunities in communication services. Legacy services are in decline, so operators need to identify other sources of revenue – many of which are associated with platform business models. Next-generation service platforms can be used as enablers for new retail services sold by operators or, via the provision of APIs, for services developed by third parties but using service capabilities provided by operators.

As the Nordic TV market is changing significantly, content is becoming increasingly important for Telenor as a distributor

In a changing market, Telenor's main content priorities should be to

- Rebalance position vs. "first commercials" (e.g. TV2)
- Secure continued access across platforms to differentiating sports content
- Secure access to second commercials content
- Gain sufficient access to premium film/series on marketable terms

- These content priorities are best solved through
- Market by market alliances with "first commercials" (e.g. TV2, TV4) using premium sports rights as entry ticket
- Secure film rights and establish a Nordic-wide horizontal alliance
- Continuing exclusivity agreement with SBS

The suggested strategy would also create option value in strengthening Telenor's hand in future structural moves, and in providing new opportunities for further content monetization

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