GSMA Network 2020

The Future of Mobile Communications

A GSMA Insight Report

Executive Summary

The changing face of mobile communications services

People around the world increasingly rely almost entirely on their mobile phones to communicate with others. Globally, SMS is still the most popular form of messaging, however, Rich IP-based messaging services are becoming increasingly popular. For example, Facebook Messenger and WhatsApp together handle 60 billion messages a day. Mobile operators' SMS and voice calling services are also widely used. A GSMA-sponsored online survey across Spain, India, China and the US found that 64% of Internet users send SMS daily compared with 75% who use instant messaging. Some 80% said they make or receive mobile phone calls daily and 27% video calls. However, there are major differences between markets. In Spain, for example, only 23% said they still use SMS daily, compared with more than 75% in the other three markets. Moreover, video calls are much more popular in China and India than in Spain and the US.

The survey highlighted strong interest for 'advanced communications' services that are mobile operator-led messaging services such as pre-calling, instant messaging, live video and real-time photo or file sharing that are enabled by Rich Communications Services (RCS) and Voice-over-LTE (VoLTE) and work natively on any device and network without the need to download an app.

The strategic importance of communications services

Some leading mobile operators believe they need to maintain a strong presence in the communications market for several reasons:

- Many mobile customers want to be able to combine SMS and IP messaging so that they can send and receive messages from any network from a single inbox. Further, customers want to share the digital content they purchase like stickers, images etc. with any other contact regardless of which messaging service, network or device they use.
- It is what customers expect: mobile operators have communications brands.
- A communications proposition is a key part of an operator's broader relationship with customers enabling them to interact easily with end-users.
- Despite shrinking usage of traditional operator services, customers are communicating more than ever and spending the majority of their time in messaging applications.
- In some markets, communications apps are becoming an important platform through which a wide range of companies can sell products and services.
- Interaction between individuals and businesses increasingly takes place through messaging platforms, which can be efficient customer acquisition and retention channels.
- Without a compelling communications proposition, a mobile operator becomes less relevant.

The business case for rolling out IP-based communications

Although mobile operators are unlikely to be able to charge consumers directly for IP-based communications services, operators could still see substantial financial benefits. In fact, the deployment of advanced communications services could generate US$5 billion of benefits for a typical operator in a developed market over the five years to 2020, according to a business case model developed by GSMA Intelligence. The research defines a typical operator as a tier one player, but not an incumbent, in a developed market with 15 million unique customers (90% post-paid) and an annual revenue approaching US$10 billion.

The GSMA has also found strong latent demand for the advanced communications proposition enabled by RCS and VoLTE. This proposition was described to the 4,045 participants in the online survey from India, China, the US and Spain: 79% said such a service would be relevant to them and 89% regarded it as unique. Across the four markets, the respondents were particularly enthusiastic about the ability to indicate a call they are making is important and show the subject of the call, as well as one-to-one chat capabilities and being able to use the same voice calling service over mobile and Wi-Fi networks.

As more and more mobile operators interconnect their advanced communications services, then they may gain other competitive advantages. Some leading operators see interoperability and universality as key differentiators enabling their customers to reach anybody on any network and ensure that advanced communications services can automatically fall-back to SMS or conventional voice calls if necessary.

Mobile operators with trusted brands could also position their advanced communications services as more secure than those of the Internet players.

Next steps

To meet the mounting demand for advanced communications services, mobile operators need to deploy RCS and VoLTE as soon as possible. To support the rollout of RCS, mobile operators can deploy their own IMS infrastructure or they could use a hosted solution. The GSMA's All-IP Business Guide explains in more detail how mobile operators can go about implementing RCS, VoLTE and related services.

Once they have deployed advanced communications services, operators should seek to interconnect with services from other operators as soon as possible.

Mobile operators also need to consider how they can broaden their communications proposition so that it works on WiFi, as well as across multiple devices, including tablets and PCs. They also need to consider how they can make it easy for businesses to use these services to interact and even transact with their customers: Providing secure and reliable communications enablers to upstream businesses could become an important source of revenue for mobile operators in future.

The rise and rise of IP-based communications

Facebook leads the global mobile communications market

The mobile communications market is in a state of flux. Although there are more than four billion SMS users worldwide sending 20 billion messages a day[1] and most of the world's 4.7 billion mobile subscribers continue to make conventional voice calls, new forms of mobile communications are fast gaining traction.

Consumers and businesses are increasingly adopting multimedia communications services based on Internet protocols in place of circuit-switched voice calls and short messaging services (SMS). Many of the leading services in the rapidly expanding IP-based communications market are closed systems[2]. The success of such services tends to be driven by network effects if and when they reach a tipping point. If a closed service can gain a critical mass of users, many more users will start to adopt the service to they can communicate with their friends and colleagues.

Facebook Messenger and Whatsapp, both owned by Facebook, are benefitting from these kinds of network effects. At Facebook's F8 developers conference in April, the social network's CEO Mark Zuckerberg said that Facebook Messenger and WhatsApp handle 60 billion messages a day.

Facebook reported that Messenger has grown to 900 million monthly active users[2], up from 700 million at last year's conference. That means it's catching up with WhatsApp, which hit the one billion users mark in February 2016.[3] Photo-messaging service Instagram, which is also owned by Facebook, reported that it had more than 400 million monthly active users in April[4].

Facebook also announced some significant updates to its Facebook Messenger service, including support for "chatbots" - software utilities that work on top of Messenger providing automated customer service, e-commerce transactions, and other interactive experiences. Early partners include 1-800-Flowers, CNN, weather app Poncho and shopping app Spring. In other words, Facebook Messenger is evolving into a digital commerce platform. For now, at least, chatbots are limited to Messenger, while WhatsApp remains focused on chat.

Although Facebook dominates the IP-based communications markets in much of the world, other players have strong positions in some Asian markets (see graphic from research firm App Annie). In China, for example, Tencent is the market leader by some distance. In March 2016, Tencent reported the combined monthly active users of the Weixin and WeChat messaging services reached 697 million at the end of 2015, representing annual growth of 39%[5].

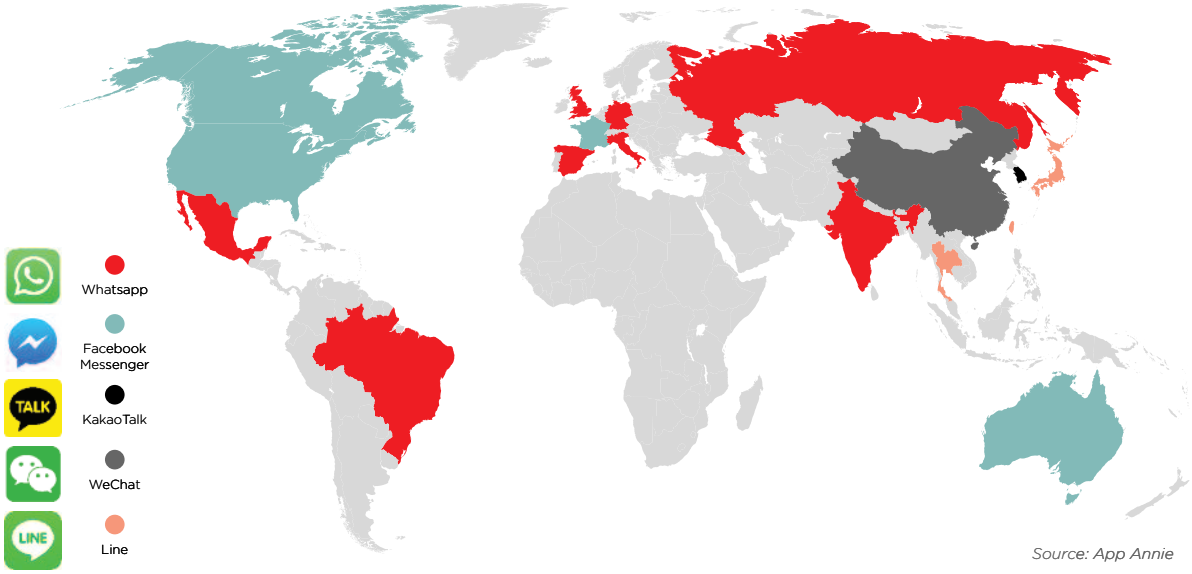
Mobile operator-led services

Some mobile operators, such as Deutsche Telekom, Orange, Telefónica and Vodafone, have deployed advanced IP-based communications services based on the RCS (Rich Communications Services) and VoLTE (voice over LTE) specifications. RCS incorporates instant messaging, chat, live video and file sharing, while VoLTE is a digital packet voice service that is delivered over IP via an LTE access network.

There are 456 LTE networks worldwide, of which 48 support VoLTE. Meanwhile, 47 operators in 34 countries have launched RCS services to date. As a result, nearly half a billion people are interconnected using these advanced communications services.

[1] Users can only communicate with people using the same service
[2] https://www.facebook.com/messenger/posts/930151277104553)
[3]https://blog.whatsapp.com/
[4]https://www.instagram.com/press/
[5]http://www.tencent.com/en-us/content/ir/news/2016/attachments/20160317.pdf)

Top Messaging Apps by Q3 2015 Monthly Active Users iPhone and Android Phone



Source: App Annie

Vodafone, for example, has rolled out a new messaging proposition in 15 markets. It first launched these RCS-based services in 2013. Vodafone customers can use the RCS app to send messages to people on other networks, but when a recipient doesn't have the RCS service, it falls back to SMS.

Call+ was launched in September 2015. It gives Vodafone customers a more interactive and personal experience when making voice calls by introducing new pre-call, in-call and post-call features. Call+ was the world's first Enriched Calling service and, in combination with the Voice over LTE services available in several Vodafone markets, delivers a truly enriched calling experience.

Vodafone has ensured that Message+ and Call+ are the default messaging and calling apps on Vodafone (the third best-selling brand through Vodafone). Moreover, Samsung and HTC handsets sold through Vodafone also ship with a RCS-compatible default messaging and calling apps. iOS [and Windows] users on the Vodafone network can also download Vodafone RCS apps. However, these don't replace the default messaging and calling apps.

Vodafone is also rolling out advanced communications services in emerging markets, as well as Europe. As more people upgrade from feature phones to low-end smartphones, Vodafone sees strong demand for rich IP-based messaging. Although the actual service is free, the underlying traffic comes out of the consumer's prepaid or post-paid data bundle, unless they are using WiFi.

The push for an open and interoperable ecosystem

In February 2016, mobile operators from around the world, including América Móvil, Bharti Airtel, Deutsche Telekom, Etisalat, Globe Telecom, KPN, Millicom, MTN, Orange, PLAY, Smart Communications, Sprint, Telenor Group, TeliaSonera, Telstra, TIM, Turkcell, VimpelCom, Vodafone, the GSMA, and Google announced the launch of an initiative to enable all operators worldwide to provide an open, consistent, and globally interoperable messaging service across Android devices. Operators have agreed to transition toward a common, universal profile based on the GSMA's RCS specifications in partnership with operators and device makers and Google will provide an own RCS client for Android devices.

By aligning on a universal RCS profile, mobile operators worldwide will be able to deploy a consistent RCS implementation, feature set, and configuration. The Android RCS client provided by Google will be based on the universal profile, enabling consumers to access RCS services on their devices. Features such as group chat, high-res photo sharing, read receipts, and more, are set to become part of the operator messaging experience, potentially enhancing the experience of the more than four billion SMS users worldwide. Google plans to also support GSMA RCS advanced calling features in the future.

The universal profile and client will enable a consistent and interoperable messaging experience between all Android devices and across all operators worldwide, as well as ease interoperability testing between networks and significantly reduce time to market. "The agreement with Google will broaden the entire ecosystem," says Enrique Marti del Olmo, Vodafone's global head of communication services.

The universal profile can be implemented by other operating systems and will be supported by a formal GSMA accreditation process. Google will also provide an open source version of their client based on the universal profile specification and will provide developer APIs to enhance the RCS client experience. "Today marks an important step forward in bringing a better messaging experience for Android users everywhere," says Nick Fox, vice president of communications products at Google.

The strategic importance of communications services

Vodafone believes it is strategically important for mobile operators to deliver advanced communications services. "The feedback we had from customers was that we had to move our service forward. It is what customers expect," says Enrique Marti del Olmo. "We have a communications brand and people expect us to provide safe and reliable communications services."

Other major operators also see the strategic importance of offering advanced communications services. Orange, which has launched RCS, VoLTE and VoWi-Fi[6] services, sees a communications proposition as a key part of its relationships with end-users. "Telephony is in the DNA of who we are," says Jean-Marie Culpin, executive vice president responsible for marketing and customer experience at Orange. "If you lose the relationship, you won't be able to increase the ARPU and sell additional services. We can't be a dumb pipe. We want to keep our relevance."

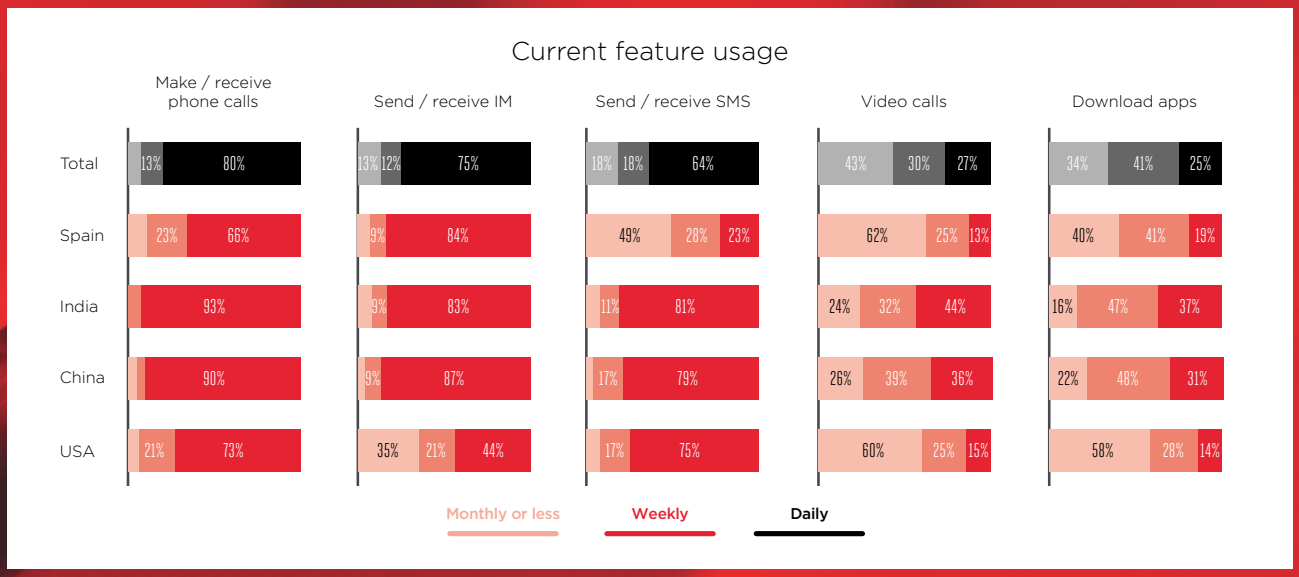
Deutsche Telekom believes that communications apps are fast becoming an important platform through which a wide range of companies can sell products and services. Kobus Smit, head of voice & messaging products for Deutsche Telekom and chair of RCS at the GSMA, says: "We see huge opportunity because messaging is becoming the next platform. A huge amount of interaction between individuals and businesses is going to happen in and around the messenger...very real marketing principles, such as customer acquisition and customer retention, cost a lot of money and a messaging channel is a very efficient way of getting that...it is a very valuable channel and definitely monetisable."

[6]VoWi-Fi is a complementary technology to VoLTE that utilises IMS technology to provide a packet voice service delivered over IP via a Wi-Fi network.

Different markets, different services

The GSMA has conducted detailed consumer research that explores usage of services, such as Facebook Messenger, WhatsApp and WeChat, and usage of mobile operators' SMS and voice calling services in different markets. The GSMA commissioned Context Consulting to carry out an online survey of 4,045 Internet users across Spain, India, China and the US in March 2016. That research found that 64% of the respondents across the four markets are using SMS daily compared with 75% using instant messaging. Some 80% said make and receive phone calls daily and 27% video calls.

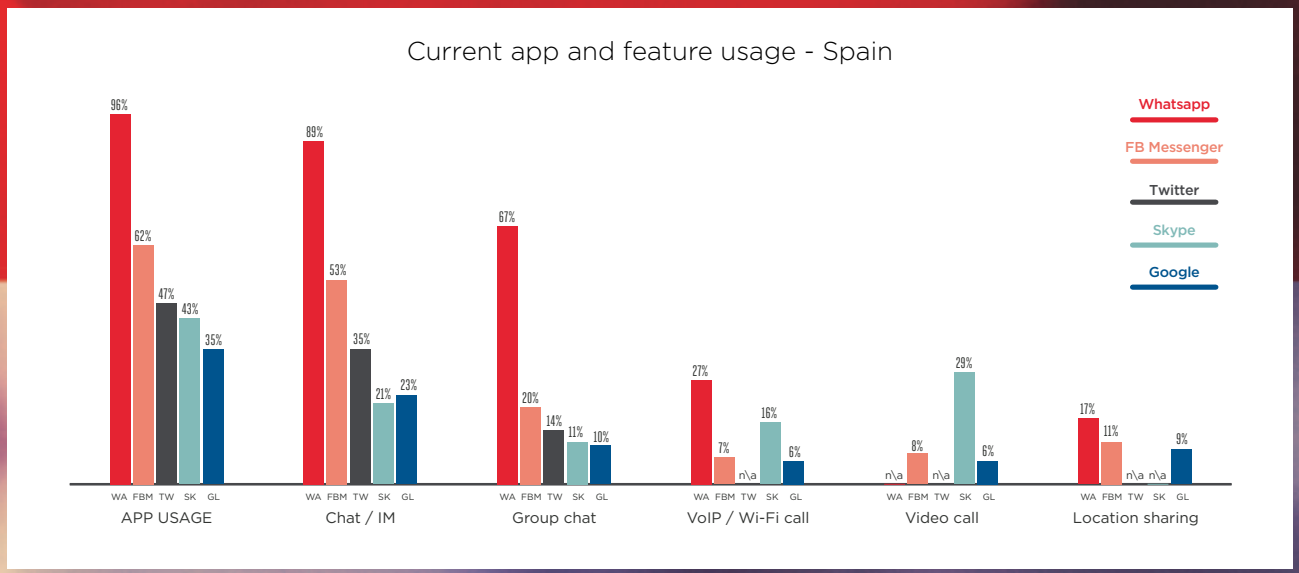
However, there are major differences between markets. In Spain, for example, only 23% said they still use SMS daily, compared with more than 75% in the other three markets. In India, 81% of the respondents said they use SMS daily.



"In some markets, people are still hitting the SMS button and we have an opportunity to give them a better experience," noted Kobus Smit at Deutsche Telekom.

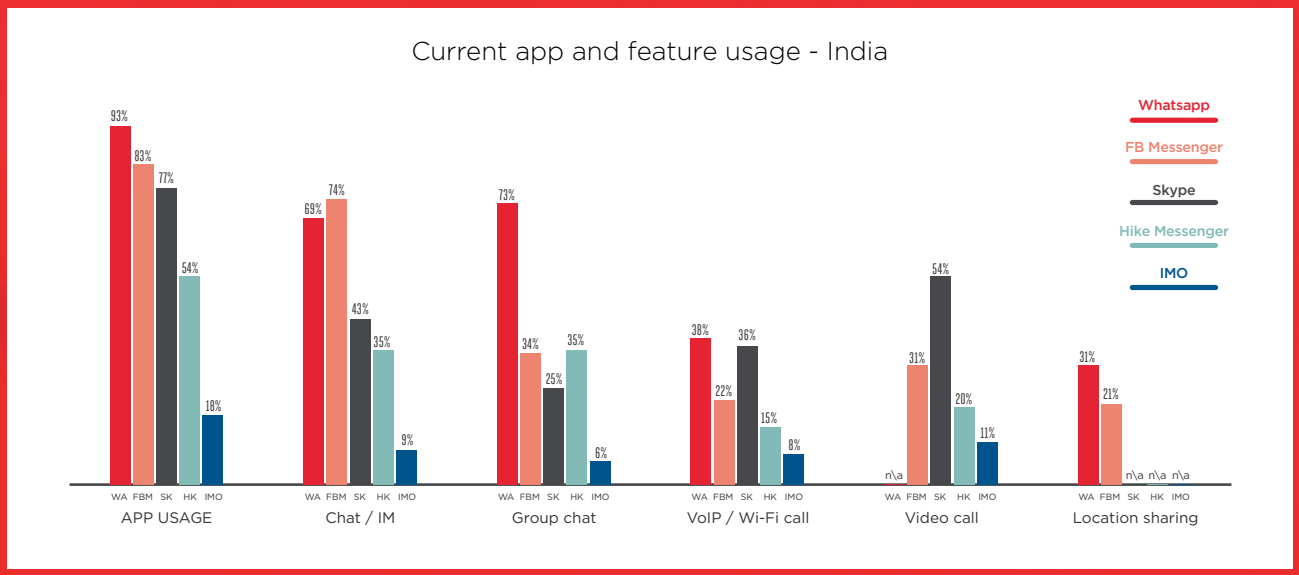
Spain – a WhatsApp stronghold

In Spain, the popularity of instant messaging appears to have curbed usage of SMS and possibly voice calls. Consumers adopted WhatsApp early, partly because of the perceived expense of SMS and partly because of the economic downturn, according to Context Consulting. A remarkable 89% of respondents use WhatsApp for chat/instant messaging each week, while 53% use Facebook Messenger, 35% Twitter and 23% Google. WhatsApp is also the most popular tool for group chat and VOIP calls, while Skype is the leading service for video calls.



India – Facebook and WhatsApp dominate

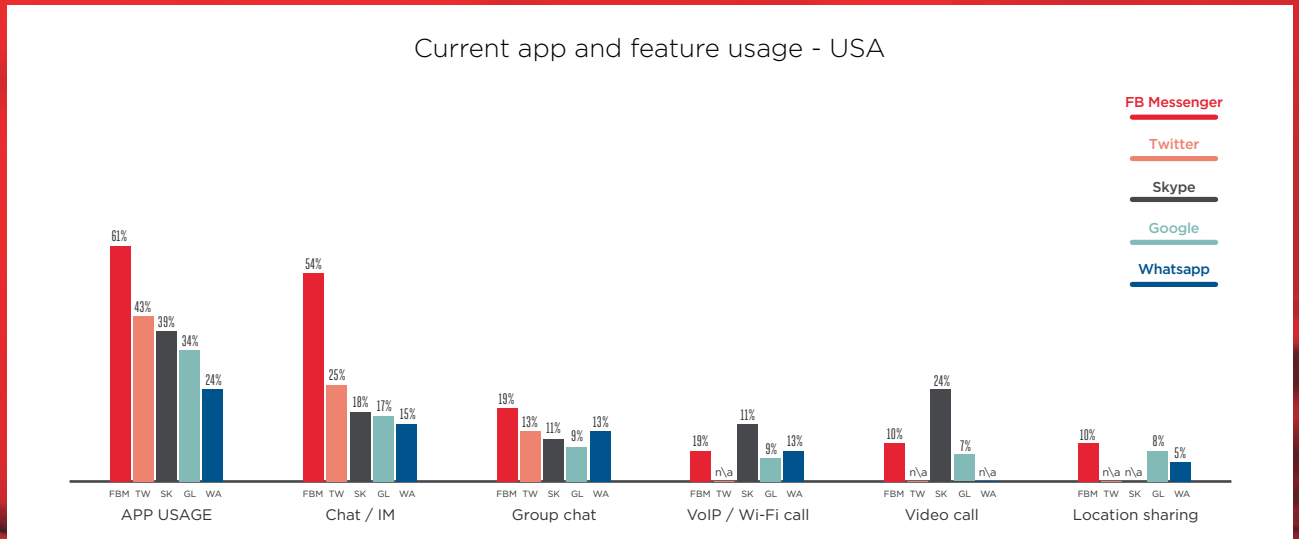
In India, almost all of the respondents (who are all smartphone users) use instant messaging, SMS and voice calling services on a daily basis. Facebook Messenger and WhatsApp lead the IP-based communications market. Almost three quarters of the respondents said they use Facebook Messenger for instant messaging or chat each week, while 69% use WhatsApp. Skype is next with 43% and Hike Messenger is also popular. WhatsApp also leads Skype in the market for VOIP calls, but the latter is the most popular service for video calls. However, it should be noted that most Indian consumers lack fixed line Internet access and the usage patterns of this group aren't captured in these figures.



The USA – highly competitive

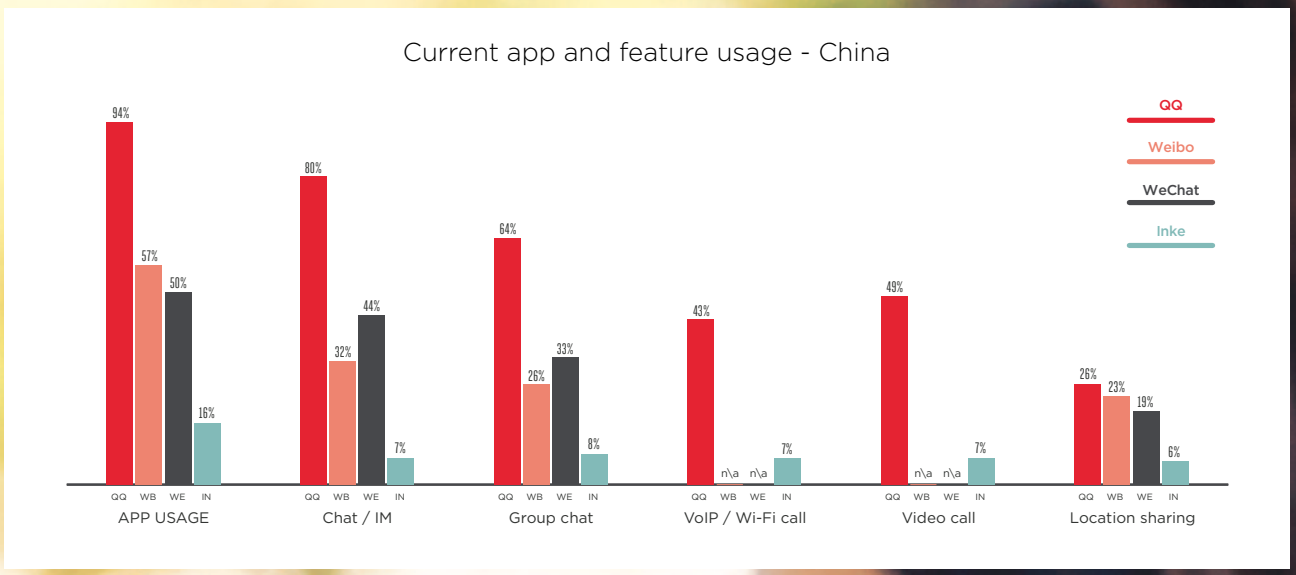
In the US, the survey found SMS is still the most widely used communications service, well ahead of instant messaging. However, Context Consulting believes those figures may be blurred by the popularity of Apple's iPhone in the US. The iPhone enables consumers to use the same app to exchange both conventional SMS and IP-based iMessages.

In the US, Facebook is a very clear market leader in chat and instant messaging through Facebook Messenger and to a lesser extent WhatsApp. Facebook's photo sharing app, Instagram, is also increasingly popular in the US. More than half of respondents said they use Facebook Messenger at least once a week for chat and instant messaging, compared with 25% for Twitter. Only 18% use Skype for this purpose and 17% use Google. But Skype leads the VOIP (15%) and video call (24%) markets.



China – Tencent territory

In China, the vast majority of people make voice calls, use instant messaging and SMS every day. Tencent dominates the instant messaging markets through its QQ and WeChat services. In the GSMA survey, 80% of the respondents said they use QQ at least once a week for chat and instant messaging, while 44% use WeChat, compared with 32% that use Weibo. QQ is also widely used in China for group chat, VOIP calls and video calls.

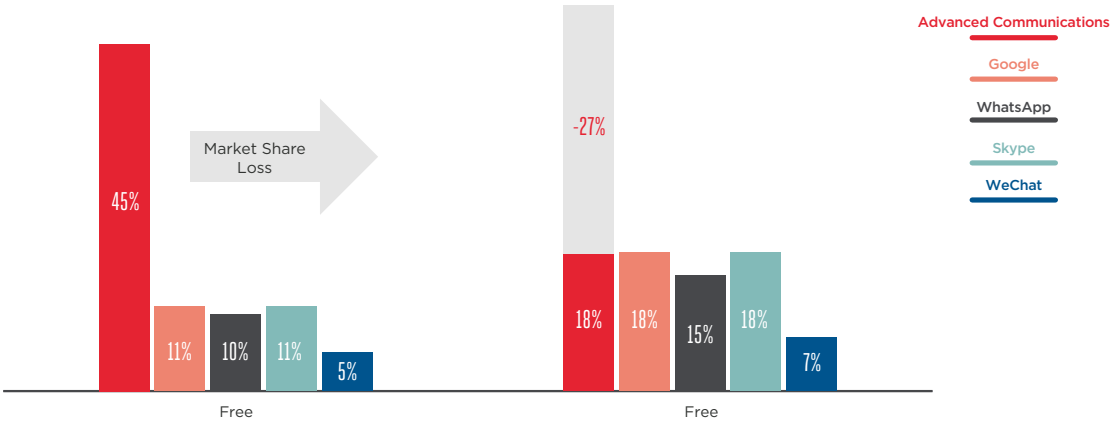


The business case for advanced communications

Most of Internet-based communications services appear to be free to the consumer in the sense that they don't levy a charge beyond what the user pays for the underlying connectivity. Instead, these services tend to earn revenues by brokering targeted advertising and marketing messages, which, in practice, means the consumer pays for the service by sharing personal data and by giving up some of their screen space to adverts.

To compete effectively with Internet-based communications offerings, most experts believe that mobile operators also need to make IP-communications services free at the point of use (the consumer doesn't pay anything on top of the charge for their service bundle). The consumer research by Context Consulting found that even charging US$1 a month would dramatically reduce take-up, assuming the Internet-based alternatives remain free.

Share of Preference change, if service is offered for **$1 per month** or equivalent by any mobile opeartor, with rest of services free



But mobile operators that offer a "free" communications service could still see substantial financial benefits. In fact, the deployment of advanced communications services could generate US$5 billion of benefits for a typical operator in a developed market over the five years to 2020, according to a business case model developed by GSMA Intelligence. The research defines a typical operator as a tier one player, but not an incumbent, in a developed market with 15 million unique customers (90% post-paid) and annual revenue approaching US$10 billion. The model assumes that smartphone penetration in the market will rise to 76% in 2020 from 55% in 2016, while the proportion of devices in use that are enabled for IP communications will rise from 40% to 94%. The model also anticipates that subscriber conversion rate to advanced communications will rise from 10% to 50% over the timeframe.

Enriches user experience

3.5bn[2]

Smartphone connections

Advanced Communication is needed to modernise user experience & drive retention

Marginal revenue growth

0.13%

Saved Revenue

Cumulative compared to 'no-go' recurring revenue in 2016-2020

Significant Cost Reduction

10%

OPEX saving

Cumulative as a result of IMS compared to 'no-go' in 2016-2020

432m[1]

And growing Interconnect to 1 Billion by 2017

0.6%

Net new Revenue

Cumulative incremental revenue (net of cannibalisation by RCS) comraed to all no-gp recurring revenue in 2016-2020

15%

CAPEX avoidance

Cumulative from re-farming spectrum & lower core network costs compared to 'no-go' CAPEX in 2016-2020

The revenue opportunity

GSMA Intelligence believes that a mobile operator deploying advanced communications service could see a revenue increase of between 2% and 14% between 2015 and 2020. It envisages the enterprise market will be the main driver for this increase in the top line. Revenues from enterprises could generate between three and eleven percentage points of the total uplift as operators charge businesses for sending messages and making calls to customers using their advanced communications apps. These figures also allow for new revenue streams resulting from product and service innovations, such as the ability to complete transactions through the advanced communications service – a concept known as conversational commerce.

In emerging markets, such as India and Kenya, Vodafone is looking to integrate its mobile messaging and mobile money services to support conversational commerce. "There is an opportunity to earn revenues upstream by charging for value added services," says Enrique Marti del Olmo of Vodafone. "This has long been a use case of SMS. Operators have a wholesale business that banks, for example, can use to send a security code via SMS. If you are the default secure communications channel, you can wholesale services on top, particularly in an all-IP world. The ubiquity and richness of RCS is ideally positioned to enable chat bots and take the traditional SMS wholesale to a completely different level."

However, he cautions that the scale of this opportunity depends on the reach operators can offer across networks. "We need to build out interoperability and increase usage before we can charge businesses," says Enrique Marti del Olmo. "When there is much higher penetration, then we can pursue this opportunity much more aggressively."

If operators can enable businesses to reach customers and potential customers regardless of whether they have the right app installed or the right kind of connection, then enterprises are likely to place a high value on that medium. Steve Murphy, CIO of specialist mobile marketing company 3Cinteractive, notes that enterprises would be willing to pay to use a service that is "native to the network, default on the device – ubiquity of reach. The carrier can provide the building blocks that protect the consumer better from identity theft and other risks," he adds. "There is real value in being the service layer that balances entrepreneurial and enterprise-grade applications with the right kind of integrity and compliance. Carriers need to participate in the revenue stream, but without having to have control."

There could also be an opportunity to earn additional downstream revenues. GSMA Intelligence estimates the consumer market could generate up to four percentage points of the total revenue uplift as operators adjust the pricing of their service bundles to reflect the perceived value of the new communications services among consumers. That figure also allows for new revenue streams resulting from product and service innovations.

"It is all about perception of what you are providing," says Jean-Marie Culpin of Orange. "If the perception is that you don't have voice any more, the value of a quadplay proposition, for example, is reduced. This is the mind-set of the customer."

"The business case is about the perceived value of the bundle – if you don't offer an attractive voice and messaging service, the value of the bundle in consumers' minds is diminished," adds Enrique Marti del Olmo of Vodafone. "Consumers see value in a trusted, reliable communications proposition."

The deployment of advanced communications services is also likely to help a mobile operator reduce churn, saving some revenues that would have been lost. GSMA Intelligence believes these saved revenues could amount to between 0.3% and 1.5% of total revenues.

However, GSMA Intelligence does assume that the advanced communications services will cannibalise existing SMS revenues, reducing the revenue uplift by between 2.5 and 12.5 percentage points.

The cost savings opportunity

If an operator invests in an IP multimedia subsystem (IMS) to support advanced communications services, GSMA Intelligence estimates the resulting OPEX savings could reach 10% by 2020 as a result of savings in interconnection, network closure and site support costs.

That estimate is based on a reduction of between 6% and 30% in the cost of running the network[7], while interconnection costs could fall by between 10% and 50% as IP transport is more efficient and there will eventually be no need to support traditional circuit-switched connections.

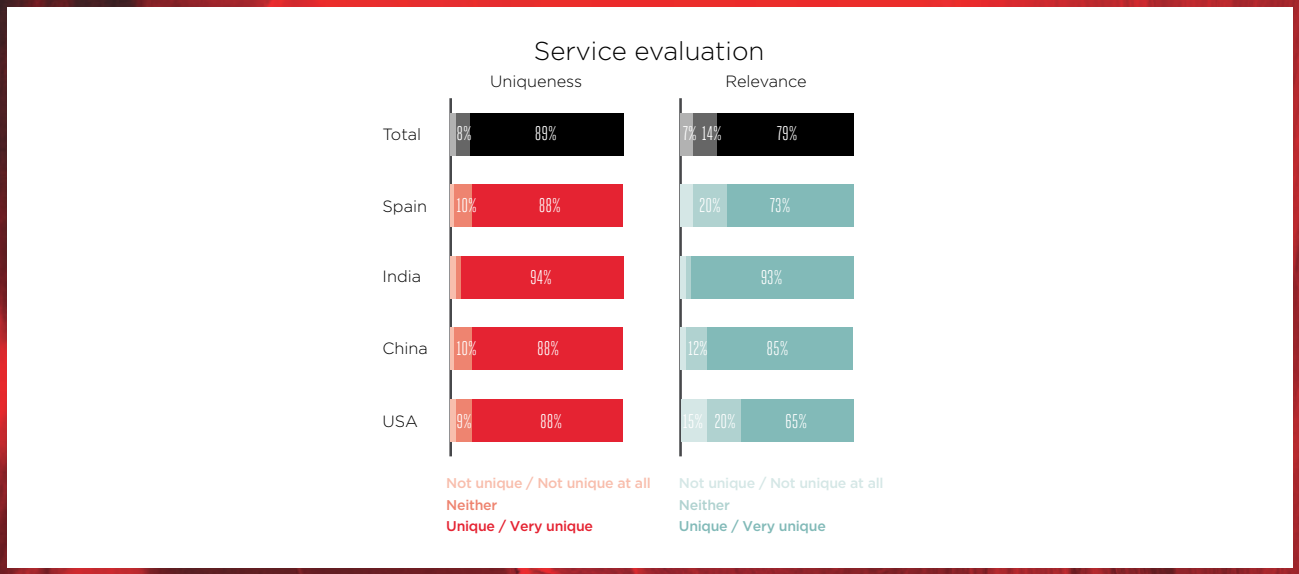
GSMA Intelligence also believes the adoption of IP-based communications could reduce capex costs by 15% by enabling the operator to refarm 2G and/or 3G spectrum rather than having to acquire new spectrum, together with core network savings as a result of reduced switching and transcoding.

[7] *Source: Nokia VoLTE White Paper*

Consumer demand for operator-led services

How much room is there for operator-led mobile communications services in markets where most Internet users are already making use of IP-based communications services provided by Facebook, Tencent, Google, Skype and others? Research carried out for the GSMA in February 2016 suggests that consumers are looking for a single, feature-rich communications service they can use to reach all their contacts and can meet all their needs.

After the advanced communications proposition enabled by RCS and VoLTE was described to the 4,045 participants in the online survey from India, China, the US and Spain, 79% said such a service would be relevant to them and 89% regarded it as unique. The survey found that consumers in India are particularly receptive to the advanced communications proposition (see diagram), but Context Consulting believes this may be partly down to a cultural tendency towards answering questions positively.



Across the four markets, the respondents were particularly enthusiastic about the ability to indicate a call they are making is important and show the subject of the call. They also singled out support for one-to-one chat and the ability to use the same voice calling service over mobile networks and Wi-Fi networks as attractive features (see table below).

The top 5 features for Uniqueness and Relevance

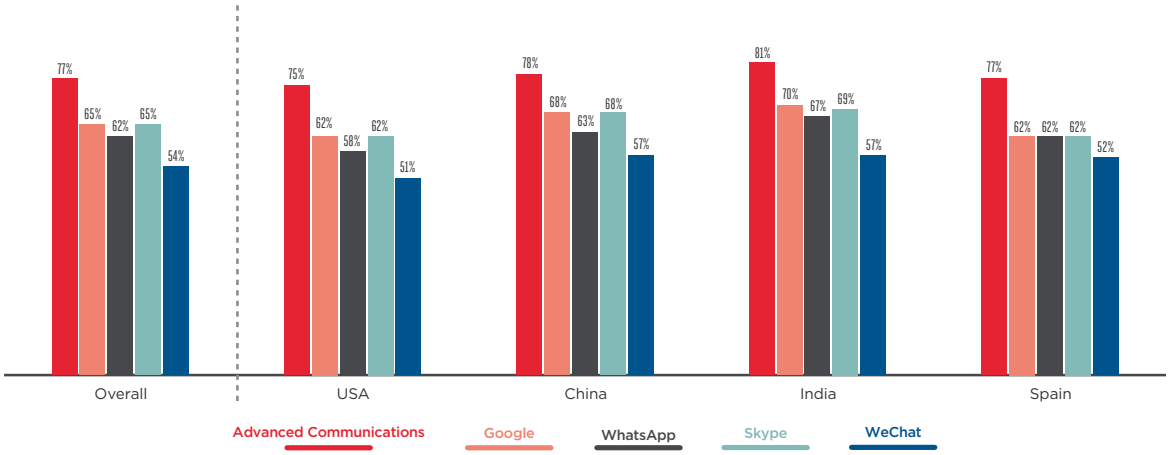
Unique	Relevant
1 Show call is important before the call	1 Show call is important before the call
2 Group Video	2 One-to-one chat (IM)
3 VoIP / Wi-Fi calling	3 VoIP / Wi-Fi calling
4 Show the subject of the call before the call	4 Show the subject of the call before the call
5 Switch from audio to video call	5 Switch from audio to video call

Feature Relevance per market

	Overall Rank	USA	China	India	Spain
Show call is important before the call	1st	1st	2ns	1st	1st
One-to-one chat (IM)	2nd	2nd	1st	=4th	3rd
VoIP / Wi-Fi calling	3rd	=4th	3rd	=2nd	=2nd
Show the subject of the call before the call	4th	3rd	=5th	=4th	=2nd
Switch from audio to video call	=5th	=4th	4th	1st	1st
Group Video	=5th	=4th	=5th	=2nd	=4th

When the respondents were asked which service they preferred, advanced communications attracted more votes than existing Internet-based services, such as Google Hangouts, WhatsApp, Skype and WeChat (see diagram). Context Consulting says this vote reflects the fact that advanced communications builds on existing features as well as adding innovative new features as well.

Derived appeal of the service in comparison to existing market players



As more and more mobile operators interconnect their advanced communications services, then they may gain other competitive advantages. Jean-Marie Culpin of Orange believes the major differentiators for operators will ultimately be interoperability and universality – the ability to reach anybody on any network and ensure that advanced communications services can automatically fall-back to SMS or conventional voice calls if necessary. "The key is to get the largest possible audience," he says. "The idea is to have a fall-back almost by design, but it has to be compatible on pricing."

"There is no reason why we can't co-exist with these other guys and have a value proposition centered on reach and availability (interconnect plays a massive role in that) and with our service you reach the globe," adds Kobus Smit of Deutsche Telekom.

There may also be opportunities for operators with trusted brands to position their advanced communications services as safer and more private than those of the Internet players. Orange says its research shows that consumers are keen to use services that provide robust protection against spam.

What do operators need to do?

Deploy advanced communications

To meet the mounting demand for advanced communications services, mobile operators need to deploy RCS and VoLTE as soon as possible. To support the rollout of RCS, mobile operators can deploy their own IMS infrastructure or they could use a hosted solution. Deutsche Telekom for example uses the Jibe Platform from Google, which supports the universal RCS profile. The Jibe Platform includes a hosted private cloud to launch RCS services and the Jibe Hub, which enables RCS networks to interconnect.

"The momentum is there with the agreement with Google, as a hosted IMS has made it extremely efficient to deploy these services," says Kobus Smit at Deutsche Telekom. "Google is effectively sponsoring this piece to enable RCS to succeed, as it needs the coverage. You can do it extremely efficiently: you don't have to do it expensively to do it well. Just don't cut corners."

The GSMA's All-IP Business Guide explains in more detail how mobile operators can go about implementing RCS, VoLTE and related services. For more information on Google's support for RCS (including the Android RCS client) visit jibe.google.com/contact-us.

Interoperability sooner, rather than later

The value of advanced communications to consumers and businesses increases substantially if they work across networks. Mobile operators should, therefore, prioritise interoperability. "The network is the most important piece – interoperability is key," says Enrique Marti del Olmo of Vodafone. "There are no real technical or commercial barriers to interconnection, except that not enough operators have launched RCS. We have launched interoperability in Germany and other markets will be added soon."

Broaden the proposition

Mobile operators need to make their advanced communications services versatile so that people can use them on different networks and different devices, such as tablets and PCs, as well as phones. "On voice, we should finalise on the deployment of voice over WiFi," says Jean-Marie Culpin of Orange. "Multi-SIM offers and devices with eSIMs[8] will help us to have our communications proposition on devices like tablets, enabling us to use our mobile identity on these devices."

[8] A SIM that can be reprogrammed for use on different networks

Mobile operators also need to consider how they can enable businesses to use advanced communications services to interact and ultimately transact with consumers. In this respect, mobile operators need to strike a balance between enabling innovation and commerce, on the one hand, and safeguarding the integrity of their networks and consumers' privacy, on the other. "It is about enabling an ecosystem with the right level of openness," says Steve Murphy of 3Cinteractive. "Operators are not going to expose their packet core to everyone, but it would be equally wrong to think they will participate in every revenue stream directly.

Operators could, for example, enable their advanced communications services to support local commerce, such as food deliveries and taxi hailing, as WeChat has done. To help raise awareness, operators could also enable major global brands to interact with customers through these services.

3Cinteractive believes that mobile operators should begin exploring the commerce opportunity as they are developing advanced communications services, as this would help them to build a business case. "Rather than doing it sequentially, you can you do it parallel," says Steve Murphy. "You can work on the networks, consumers and enterprise monetization with the right services at the same time"

"We are not worried about Facebook and WeChat, it is the disruptive start-up we don't know about yet," he adds. "But if we do advanced communications correctly, then that start-up will disrupt on top of RCS. That is the ultimate challenge to ensure the next big start-up builds on the operator platform."

For more information on the GSMA's work with global operators and RCS (including the profile alignment) visit **http://www.gsma.com/network2020/all-ip-news/.**

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