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GSMA. Digital Inclusion

Mobile internet usage challenges in Asia — awareness, literacy and local content

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GSMA. Digital Inclusion

Contents

1. Executive summary

Nearly 800 million new mobile internet subscribers are forecast to come online in Asia by 2020. The vast majority of these new mobile internet subscribers will come from the emerging markets in the region. This, however, is dependent on overcoming the barriers of digital literacy (the skills that are needed to access internet content) and awareness (an accurate understanding of the content that is available). In parallel, it is critical that local, relevant and useful content is available to meet the requirements of these subscribers.

Recent consumer research conducted in India has corroborated our hypothesis that three key factors will need to be addressed in order to enable non-users to engage with mobile internet services.

Firstly, many consumers do not know how to access the internet on either a smartphone or feature phone. Secondly, although people know the internet exists, there is a misconception that the internet is only useful for entertainment services – rather than services that can be beneficial in terms of productivity. Thirdly, there is a clear desire to use content and services in native languages.

It must be acknowledged that these three barriers are intrinsically linked with each other; solving one will not be enough to entice new users to engage with mobile internet services. For example, if local language content is created but people are not aware of it and/or do not have the skills to access it, then the content itself will have little impact.

Consumer research has shown that family and work networks have been key in overcoming digital literacy and awareness barriers among current mobile internet subscribers. Existing mobile internet subscribers in Asia are generally finding the content they are looking for – through search functions and social networks. However, a lack of easily accessible content is limiting usage amongst feature phone users and those on 2G networks.

The consumer research highlights that current mobile internet subscribers have three "go to" services for internet content: Google for search purposes, WhatsApp for sharing local and practical information, and Facebook for entertainment and small business sites. However, gaps in local content were highlighted, including bus timetables, market prices, crime alerts and women's helplines.

The primary frustration among current users is the slower technology that some are using (feature phones and 2G networks). Of the 2 billion mobile internet subscribers expected in Asia Pacific in 2020, over 500 million are expected to primarily use 2G networks. In order to keep these subscribers engaged in mobile internet services, the content ecosystem must ensure that there is content suitable to use on these handsets and networks.

Mobile network operators (as well as other stakeholders) have a key role to play in overcoming the barriers that exist for both existing and new mobile internet subscribers. Establishing education programmes to improve skills and awareness can help people access relevant content. Working with local entrepreneurs can help to create the relevant content and ensure it is accessible to all users rather than focused solely on smartphone and 3G users.

Our Stakeholder Survey across emerging Asian markets also acknowledges a lack of digital literacy as a key barrier in the uptake of local internet content.

The next most important barriers highlighted the need for increased levels of funding for local innovative start-ups. Mobile operators can support this through incubator programs and working with local entrepreneurs. Whilst the start-ups can leverage operator assets such as billing platforms and the consumer relationships, operators can nurture services that would meet the needs of consumers with lower specification handsets and in 2G-only coverage areas.

With more than 50% of global mobile internet subscribers expected to come from Asia Pacific in 2020, there is an opportunity for MNOs and other stakeholders to provide a richer, more meaningful experience for non-users by educating them on the availability of relevant services and improving digital literacy skills. By doing this, consumer engagement in the mobile internet will increase and ultimately result in the creation of more locally relevant content through user-generated sources.

2. Introduction

In this report we examine some of the barriers that consumers face when accessing mobile internet services as well as the behaviours and consumption patterns of those already using content in Asia. Secondly, we examine the key barriers and challenges that mobile network operators and content providers face when generating local content.

We then examine the role that mobile network operators and other key stakeholders can play in addressing these barriers, thereby encouraging non mobile internet users to engage with the mobile internet.

In order to understand these barriers, we have undertaken two primary research projects:

Consumer research: we conducted primary research in India with 2CV Research to understand internet perceptions, usage, digital literacy and the role of local content in the adoption of mobile internet services. The consumer research was carried out through a series of interviews and community visits in both urban and rural areas with a mix of mobile internet subscribers, subscribers who only use voice and text, and non-subscribers. Although the consumer sections of this report focus on India, it has been complemented with findings from previous research in other emerging Asian markets.

Stakeholder survey: we also conducted an online survey of mobile network operators and service providers in Asia aimed at identifying the primary barriers to the creation and adoption of local content. This stakeholder survey included participants from nine countries.

Whilst we recognise the importance of affordability and network coverage in the overall rollout of internet services, these barriers have already been examined in a recent report by GSMA Intelligence[1] so we do not look at these elements in detail in this report. The GSMA Digital Inclusion program has prioritised four barriers to mobile internet adoption — network infrastructure and policy, affordability and tax, digital literacy and local content.

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[1] GSMA Intelligence, _Closing the network 'coverage gaps' in Asia_ (2015)

What is local content?

Mobile content is any form of electronic media (pictures, music, voice, text, videos, games, maps etc.) that can be viewed or used on a mobile device, such as a mobile phone or tablet.

Referring to content as 'local' can mean many things. It can refer to content that is in the local language, content that is created and hosted locally, or content that happens to be relevant to the local population. In terms of local language, much of the content currently available is simply directly translated, without taking into consideration local nuances.

In Figure 1, the three circles represent content that is locally relevant, created locally, or in the local language. The centre of all three categories represents content that is locally generated, in the local language, and locally relevant to users in emerging countries —   i.e. content that is created within the markets themselves and that addresses specific needs.
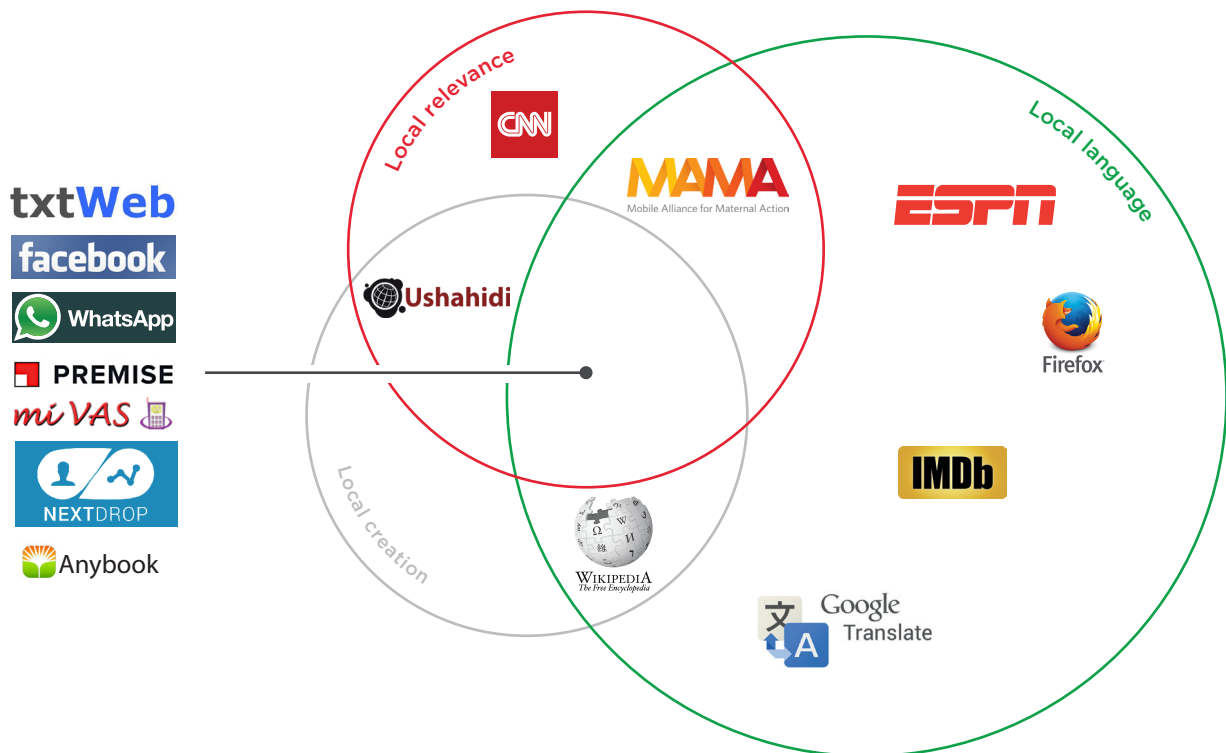

Figure 1: Local content
Source: GSMA Intelligence

Further detail on the definitions around types of content can be found in the GSMA Intelligence report *Local world — content for the next wave of growth*.

2.1 The journey to engaging with internet content has many stages

Having established what content is, it is equally important to understand the journey a consumer undertakes from being unaware of the internet to becoming fully embraced with the potential it offers and contributing through the creation of content.

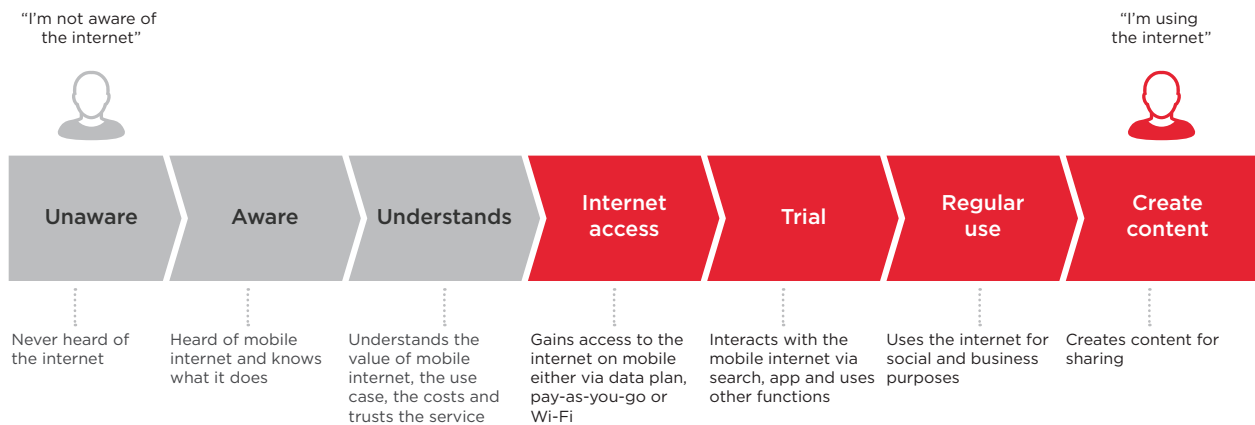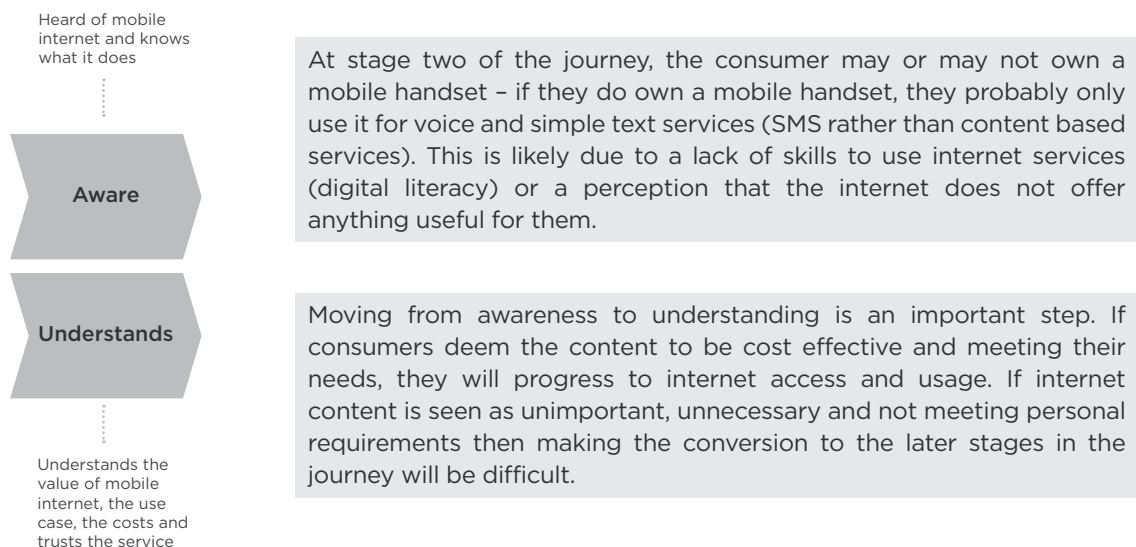Figure 2 illustrates a framework for the consumer awareness journey.

"I'm not aware of the internet"

"I'm using the internet"

Unaware	Aware	Understands	Internet access	Trial	Regular use	Create content
Never heard of the internet	Heard of mobile internet and knows what it does	Understands the value of mobile internet, the use case, the costs and trusts the service	Gains access to the internet on mobile either via data plan, pay-as-you-go or Wi-Fi	Interacts with the mobile internet via search, app and uses other functions	Uses the internet for social and business purposes	Creates content for sharing

Figure 2: Consumer awareness journey
Source: GSMA Digital Inclusion[2]

Although this path presents a logical and relatively straightforward journey, it is important to highlight the significant barriers experienced amongst non-users in the earliest stages. The second ("aware") and third ("understands") steps are critical in enabling lower-income non-users in developing markets to fully appreciate the impact mobile internet services can have on their lives:

Heard of mobile internet and knows what it does

Aware

At stage two of the journey, the consumer may or may not own a mobile handset – if they do own a mobile handset, they probably only use it for voice and simple text services (SMS rather than content based services). This is likely due to a lack of skills to use internet services (digital literacy) or a perception that the internet does not offer anything useful for them.

Understands

Moving from awareness to understanding is an important step. If consumers deem the content to be cost effective and meeting their needs, they will progress to internet access and usage. If internet content is seen as unimportant, unnecessary and not meeting personal requirements then making the conversion to the later stages in the journey will be difficult.

Understands the value of mobile internet, the use case, the costs and trusts the service

[2] GSMA, *Digital Inclusion Report 2014* (2014)

3. Non-users – the opportunity to bring many more consumers online

In order to understand the scale of the opportunity, we firstly highlight the current mobile industry context and the expected growth of mobile internet subscribers in Asia by 2020. This is followed by an overview of the three main barriers identified in the consumer research — relevance, digital literacy and language.

3.1 Some 1.3 billion mobile internet subscribers in Asia today, but significant opportunities remain

In 2014, Asia represented more than half of the world's mobile internet subscribers — almost 1.3 billion. This represents approximately 30% of the total population of Asia. By 2020 the number of mobile internet subscribers in Asia is expected to increase to 2 billion. This accounts for over 50% of global mobile internet subscribers in 2020.
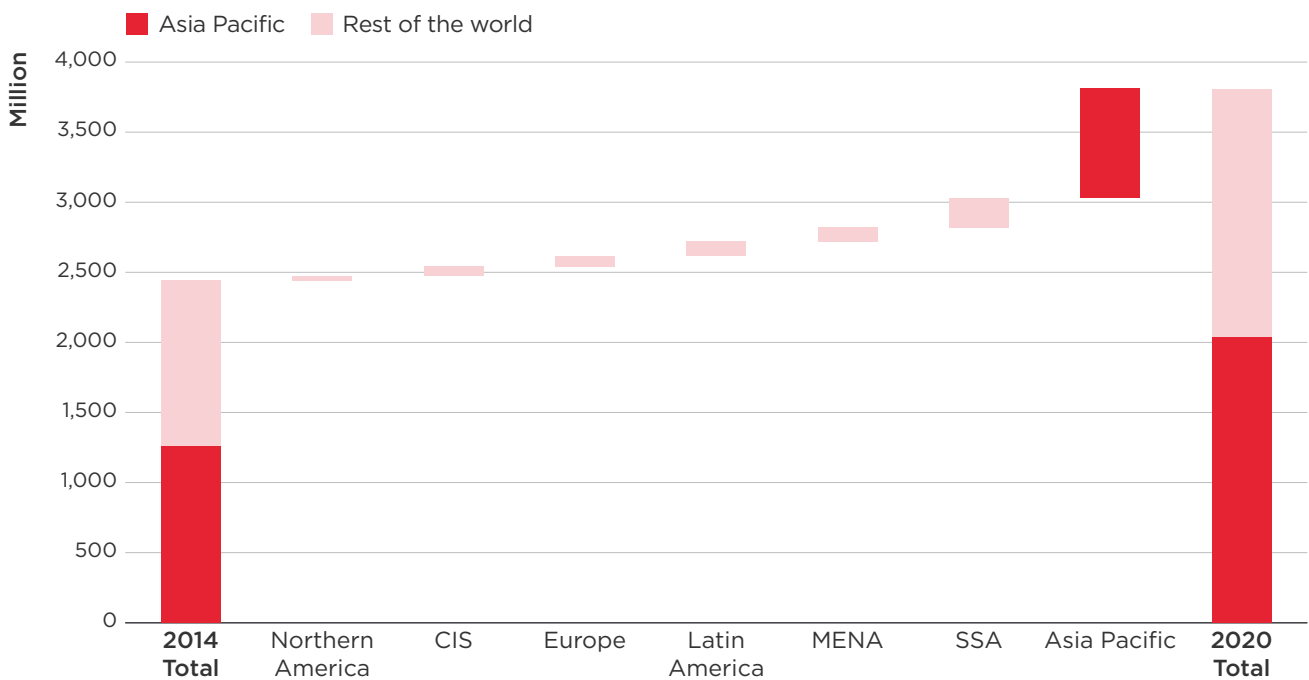
Figure 3: 2014 mobile internet subscribers and net additions to 2020
Source: GSMA Intelligence

Within Asia, there are significant differences in terms of the number of mobile subscribers that have used mobile internet services:

- The highly advanced markets such as Japan, Taiwan and South Korea already show nearly, or above, 70% of the population using mobile internet services

- Less than 20% of the populations of Myanmar, Bangladesh, Pakistan, Laos, Cambodia, Nepal and Bhutan have used mobile internet services
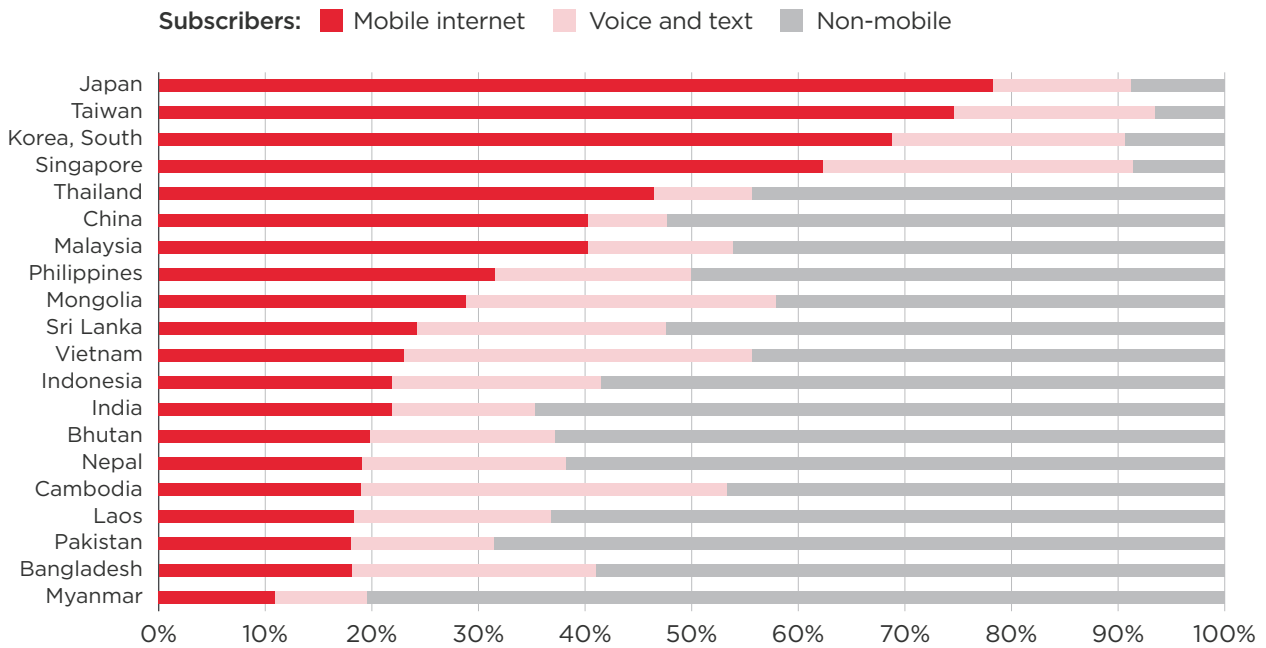
Subscribers: ▪ Mobile internet ▪ Voice and text ▪ Non-mobile

Figure 4: Breakdown of mobile internet, voice and text and non-mobile subscribers at the end of 2014
Source: GSMA Intelligence

This naturally leads to a strong focus on the emerging markets within the region when identifying the growth opportunities (in terms of mobile internet subscribers). Although China and India will continue to dominate in terms of absolute subscriber numbers, countries such as Indonesia, Pakistan and Bangladesh are all forecast to show, at least, a 75% increase in the number of mobile internet subscribers by 2020.
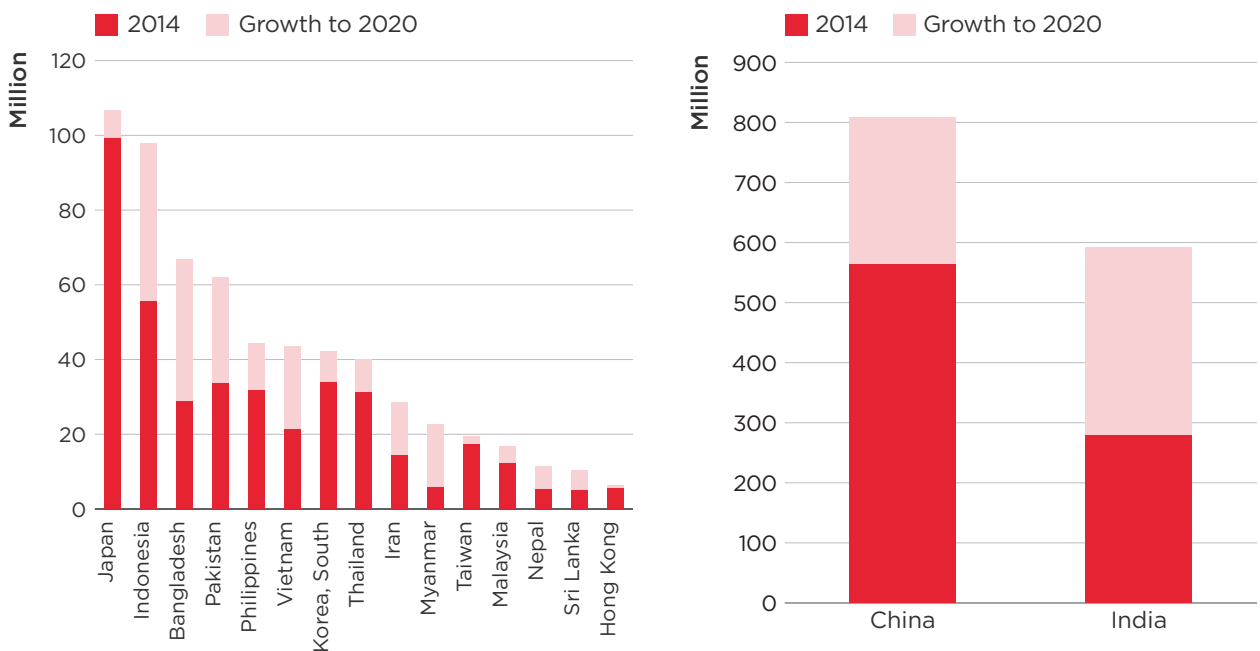
Figure 5: 2014 mobile internet subscribers and forecast additions by 2020
Source: GSMA Intelligence

Our consumer research identified three key barriers for non-users that will need to be addressed in order to reach the levels of engagement forecast.

1. Relevance: lacking awareness of the benefits of using the internet
2. Digital literacy: lacking the skill set to use internet services and content, combined with a lack of confidence in internet security and privacy
3. Language: absence of content provided in native languages

Here we look at each of these barriers in more detail.

3.2 Lack of awareness of the benefits of internet content

Many non-users lack awareness of the full range of internet uses and content available and consequently do not feel the internet is relevant or useful to them. Some non-users deem the most visible, public and high-profile internet activity of existing users to be entertainment, passing time and posturing – for example through chatting on Facebook, or online shopping for personal items. These types of activities tend to be more associated with those who are urban, educated and of a higher social grade.

Although the entertainment use case is the most well-known by non-users, it is not one that is always deemed relevant or beneficial to them, and so does not drive them to use the internet.

> 66 **Internet is not of use to me; I would rather spend my money on a gas cylinder — it's more useful. It's a hobby for people with big money, who want to buy shoes and shirts and chat** 99
> — non-user, rural India

Research in other emerging Asian markets has shown a similar message around the internet primarily being used for social media and non-productivity related services. The quote below is taken from recent user research conducted by Mozilla in rural Chittagong, Bangladesh.[3]

> 66 Researcher: **Do you go on the Internet?**
> Respondent: **No, I don't have my Facebook account yet** 99
> — rural Chittagong, Bangladesh

The trend that Facebook (or social media) is the internet is not a new phenomenon and one that continues. Quartz recently reported on this, citing research first reported in 2012.[4]

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[3] Mozilla, _Webmaker User Research_ (2014)
[4] Quartz, _Millions of Facebook users have no idea they're using the internet_ (2015)
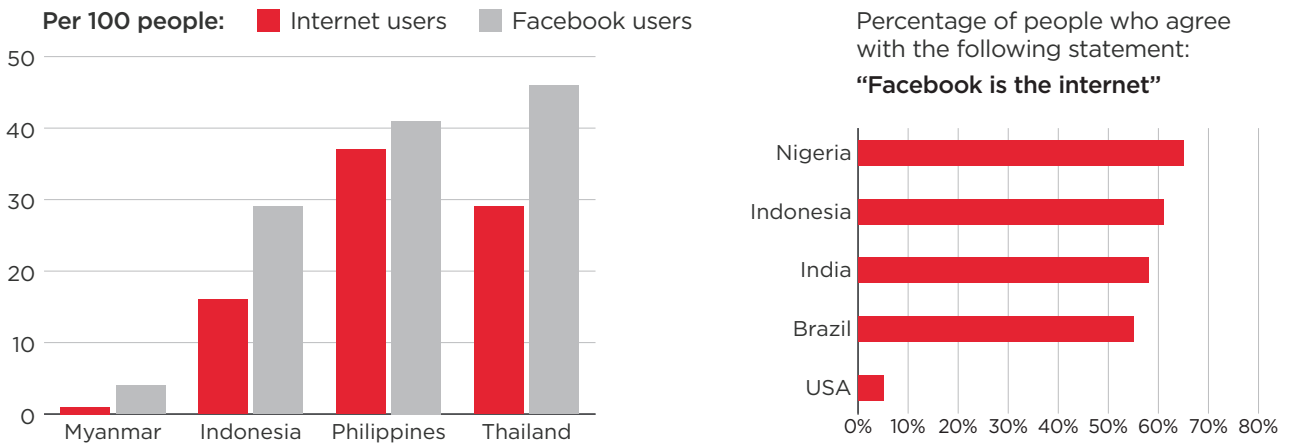
Figure 6: Facebook is the internet?
Source: Quartz

The lack of understanding around the relevance of internet content is largely driven by the usage patterns of existing mobile internet subscribers.

Data from Our Mobile Planet highlights that, across Asian countries, entertainment, communication and search are the primary services used by internet users (on smartphones). This consumption behaviour is reinforcing the perception amongst non-users that the internet does not meet their specific needs.
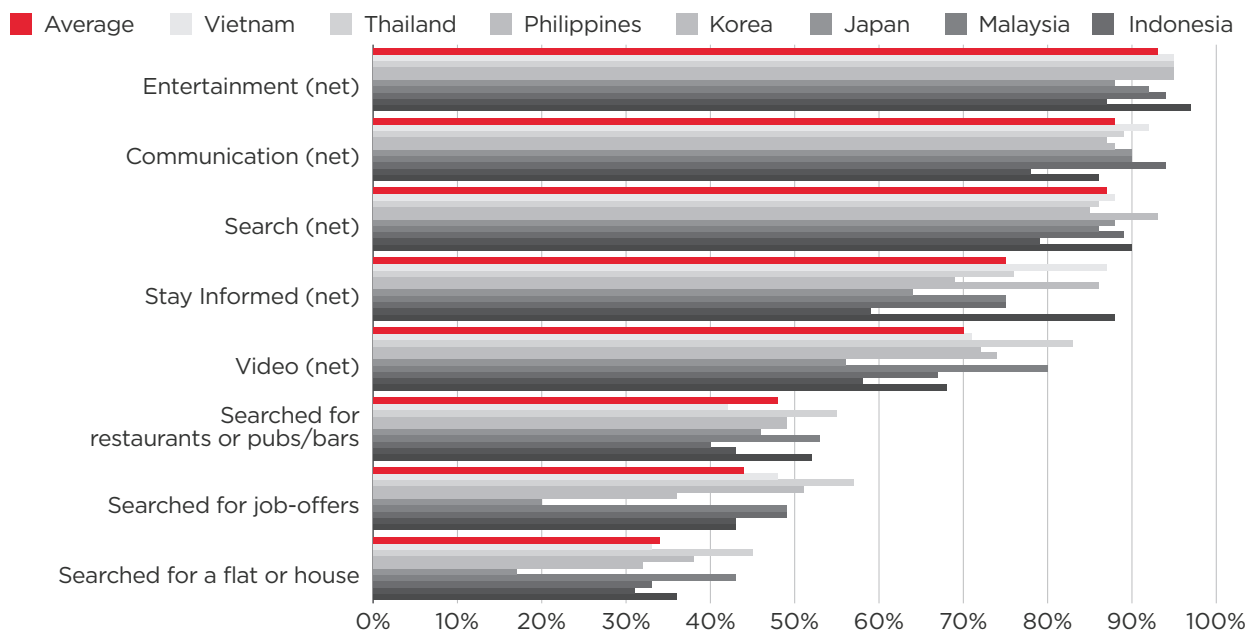

Figure 7: Smartphone activity by country
Source: Our Mobile Planet

A review of operator websites in emerging Asian markets has revealed that the service offerings primarily address the entertainment segment of the market through SMS, USSD, IVR and video-based content.

In this case, it appears that the supply of services is matched with demand but it is impossible to tell whether demand for entertainment is the key factor in determining the range of operator services or vice versa. Services that focus on productivity such as mAgri, mEducation and employment (which are more likely to meet the needs of non-users on lower incomes) are less common.
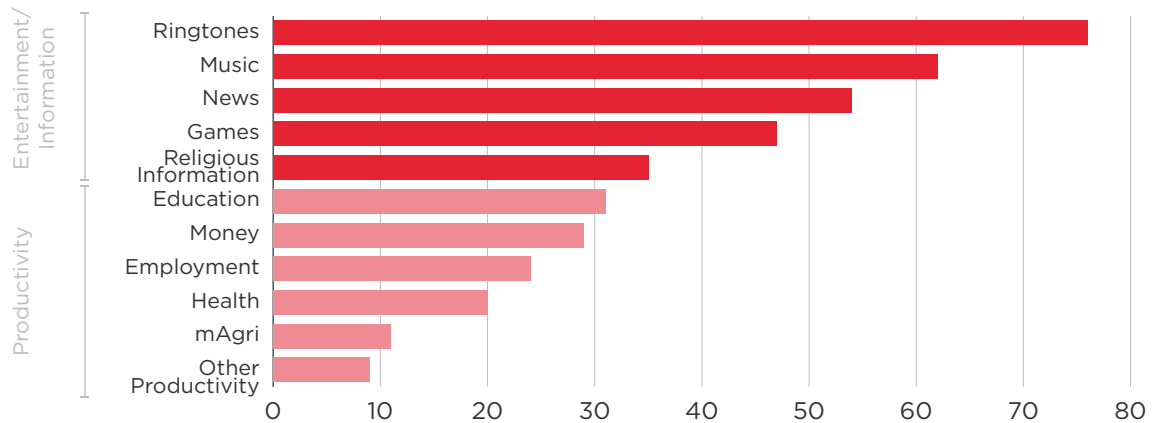

Figure 8: Emerging Asia: operator content services by type
Source: GSMA Intelligence, c.100 operator websites

Raising the awareness of the availability of productivity and educational services (e.g. mAgri, mEducation) is critical to help non-users understand and reap the benefits available through mobile internet services. The benefits of these types of services have been well documented, showcasing that mobile can go beyond being a tool for communication and entertainment and be a source of employment and government services. It has significant opportunities across a range of sectors, most notably financial services, youth unemployment, utilities, access among women in rural areas, and business efficiency.

One example of a broader approach to mobile internet services is Ooredoo in Myanmar, which offers a wide range of entertainment and productivity content.
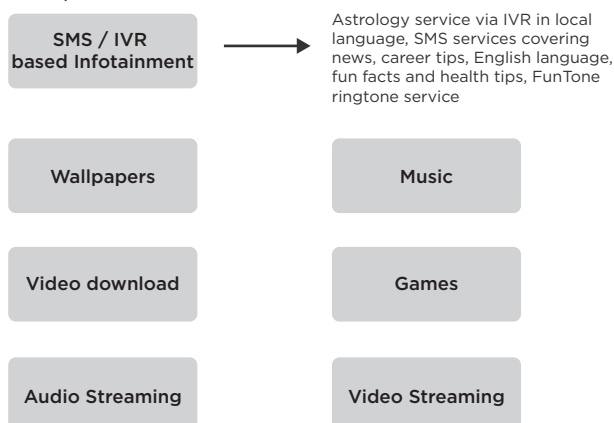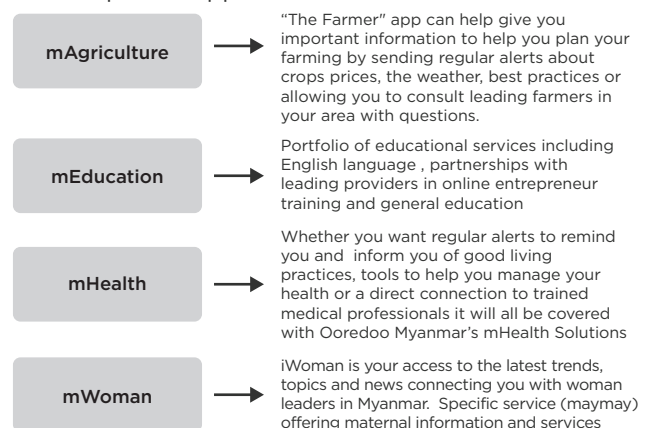

Figure 9: Ooredoo Myanmar service offerings
Source: Ooredoo

These findings reveal that concerted efforts are required to educate consumers as to the benefits and value of using the internet to access local and productivity related services available to them. Although many operators do offer internet services that go beyond ringtones, music and celebrity news, it is critically important to inform and educate non-users as to what is available. Ultimately, non-users must become aware of the mobile internet content that is relevant to them in order for the benefits of internet data use to justify the cost.

3.3 Digital literacy

Non-users often lack the digital skills to be able to access the mobile internet and discover what is available. This can be compounded by a lack of motivation due to the perception of limited relevant content.

> 66 **We're too old to learn [at 22], and I don't think it's of any use to me so why am I going to try?** 99
> — non-user, rural India

Digital literacy can be particularly problematic on feature phones, where more steps are required to access the internet and knowledge of what one is trying to access on the internet is often required to conduct the search action.

Additional research has shown that this trend is not just limited to India. According to a recent report published by the GSMA Connected Women team[5], the barriers around digital literacy are replicated across other emerging markets.
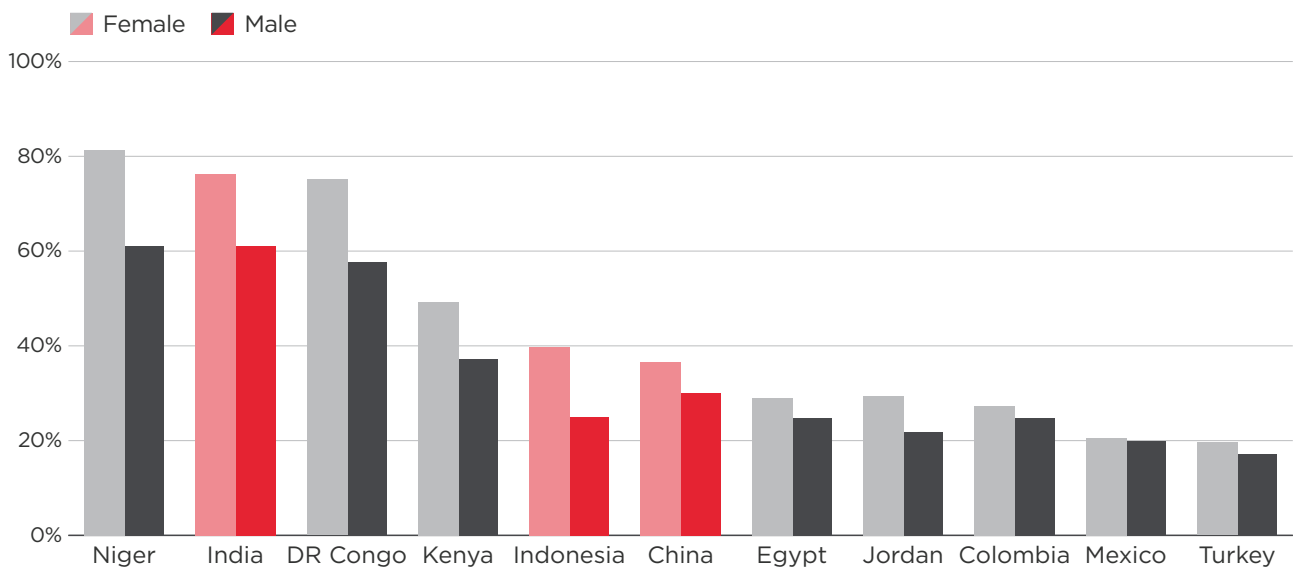

Figure 10: Percentage of male and female mobile phone owners who reported they need help using mobile internet[6]
Source: GSMA Connected Women

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[5] GSMA Connected Women, *Bridging the gender gap: Mobile access and usage in low and middle-income countries* (2015)
[6] Note: sample size for women is 250 to 779, for men 110 to 219

In the stakeholder survey completed as part of this study, the lack of digital skills was rated as the highest barrier to the uptake of internet content by mobile network operators and service providers. Recognition of the barrier by both consumers and providers is an extremely positive step to addressing the issue but action is required to improve the situation. As explained in the *Implications* section, mobile network operators can take a leading role in educating consumers and helping them to become digitally literate.

3.4 Language

The fact that a highly disproportionate percentage of internet content is in a limited number of languages has been well documented. Research continues to highlight that a lack of content in native languages is still a barrier to non-users engaging with internet services.
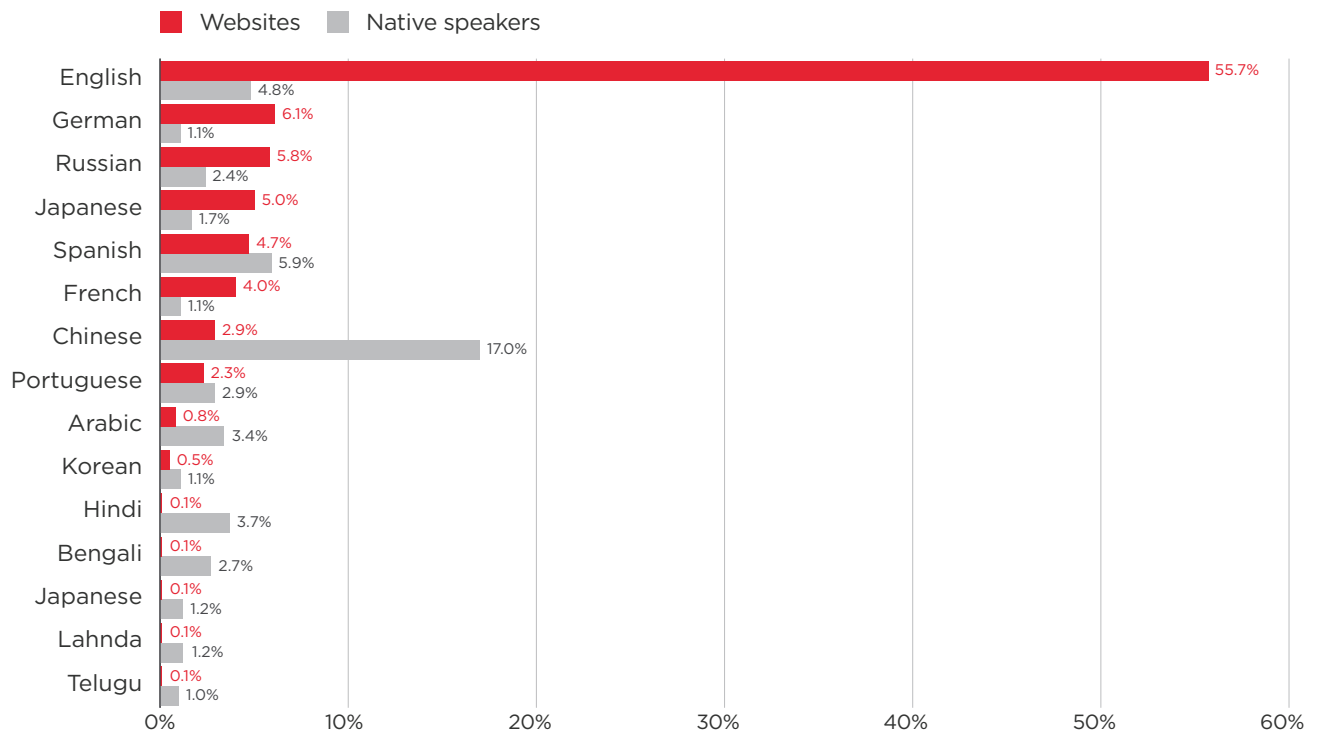

Figure 11: Lack of availability of non-English websites
Source: GSMA Intelligence, W3Techs, Ethnologue

The consumer research in India revealed a concern amongst some users that English language content brings a risk of potential exposure to undesirable material and influences from other cultures. Whether or not this is a justified concern could be debated extensively but the desire to have content in native languages is clear.

This message has been repeated across other markets in Asia:

- **Philippines**: On Device research reports that 60% of internet users would prefer to access content in Filipino rather than English

- **Bangladesh**: GSMA and Mozilla research highlights that the Bangla language has direct ties to the origin story of the country and brings with it a sense of pride, driving a desire to access content in Bangla (despite wide proficiency in English)

Although language is a barrier in attracting new users, creating local language content cannot be seen as a stand-alone solution. If the issues around awareness of relevant content and digital literacy are not addressed, non-users will not know the content exists or how to access it, regardless of what language it is in.

4. How current mobile internet users have overcome these barriers

With awareness and literacy highlighted as two of the key barriers for non-users, it is important to understand how existing users developed the necessary knowledge and skills to become engaged with mobile internet content.

4.1 Awareness and skills spread through family and work networks

Typically users in India have developed their skills at home, in the workplace or within trusted local community environments. Once learnt, they can take that knowledge and transfer it to other environments (e.g. learning at work and passing on the skills at home or vice versa). Given the phenomenon of dual-SIM mobile phone ownership, some users have personal and work access, expanding opportunities for shared access to mobile internet at home. There is also a tendency for the breadwinners to have primary ownership and access to the most advanced mobile phone in the household.

> 66 **My husband got his [smartphone] from his work… I only have a small, petty job. I have my [feature phone] my mother gave me** 99
> — user, urban India

The care-givers tend to be the last group in the household to access or use a mobile phone or consequently mobile internet. Where they have access it is more likely to be a feature phone with 2G internet.

> 66 **My husband's phone is the 'family phone', because you can't do much on mine, so me and my son use his phone** 99
> — user, urban India

Sharing of devices is important to achieve mobile internet access in households; despite feature phone prevalence, its limitations mean that where there is a smartphone within the household, there is a tendency for it to become the 'family phone' when the owner is home.

> 66 **My husband taught me to use the internet on his phone and my boss taught me to use internet on computer** 99
> — user, peri-urban India

4.2 Current mobile internet users are finding relevant content through existing services

According to the consumer research conducted in India, current users feel that their information needs are being met through three main services: Google, Facebook and WhatsApp. The perceived barrier of finding relevant content has therefore been largely overcome through existing services.

Google is the go-to site for accessing practical information on the mobile internet. Google is particularly important for feature phone users, as it is their primary way of accessing mobile internet and one of only two internet services they tend to use (the other being Facebook, which is primarily accessed through Google).

WhatsApp is used for user-generated, local information relevant to the user. Users access and share practical information and news relevant to them through WhatsApp groups and individual messages (e.g. sharing notes with their 'college' WhatsApp group), whilst some adults use it to support their business needs. The advantage of WhatsApp is that it has multiple channels that can be used by and for less literate people, including audio, video and images. WhatsApp is also perceived by users as 'safe', because it is a closed, private network and linked to a mobile number rather than an ID (as per Facebook), so there is less concern about fake profiles or people misrepresenting themselves.

Facebook has a narrower use case as it is perceived primarily for entertainment or passing time, including chatting, commenting on pictures, accumulating 'likes' and flirting. Although Facebook is deemed essential by mobile internet users, it is largely used only for entertainment purposes. However, we also see examples of small and medium-sized enterprises (SMEs) using Facebook as a tool for advertising. SMEs often have a business page on Facebook, sometimes in place of a business webpage, and use the ads to reach their targeted audience across multiple kinds of device.

Although some users perceive that they have all the information they need through the internet, some hyper-local needs are still to be served. These include:

- Market prices for wheat – the government sets the market price but this can differ markedly from the price in the village market place when traders put the price up
- Bus services in Delhi – fares, bus routes, times and locations
- Women's helpline in Delhi – women's information, particularly on public safety
- Crime alerts in Delhi – quick access to the local police station when a crime has taken place

> 66 **I get the bus to college every day, and it would be useful to have an app for bus times, routes, fares... my friend has just made one for the metro so I expect one to come soon** 99
> — user, urban India

4.3 Existing users still find slower technology a key source of frustration

Even when a consumer begins to use mobile internet services, frustrations exist when using feature phones and/or slower 2G networks. This is particularly true if they have seen the benefits of using a smartphone or 3G network (e.g. after being shown and taught how to use a shared smartphone within a family unit). These frustrations include the following:

- **Feature phones**: the small screen, complex and tedious process of accessing the internet, slow speed and site loading

- **2G networks**: speed of the network and the inability to load certain sites over a 2G network

These are both important issues to address, as feature phones and 2G networks remain a key part of the Asian market. In 2014, smartphones accounted for 37% of total connections in Asia (the remainder being a combination of feature phones, basic phones and data terminals). Whilst this is similar to the global level, the overall Asia number hides significant discrepancies between countries (see Figure 12). In some emerging markets in Asia, smartphones currently represent less than 20% of connections – with the majority of connections still being used with feature phones. As costs continue to fall over the next five years, the share of smartphones will increase in emerging markets to around 50% (see Figure 12) – though this does still leave a significant proportion of the market using less powerful handsets.
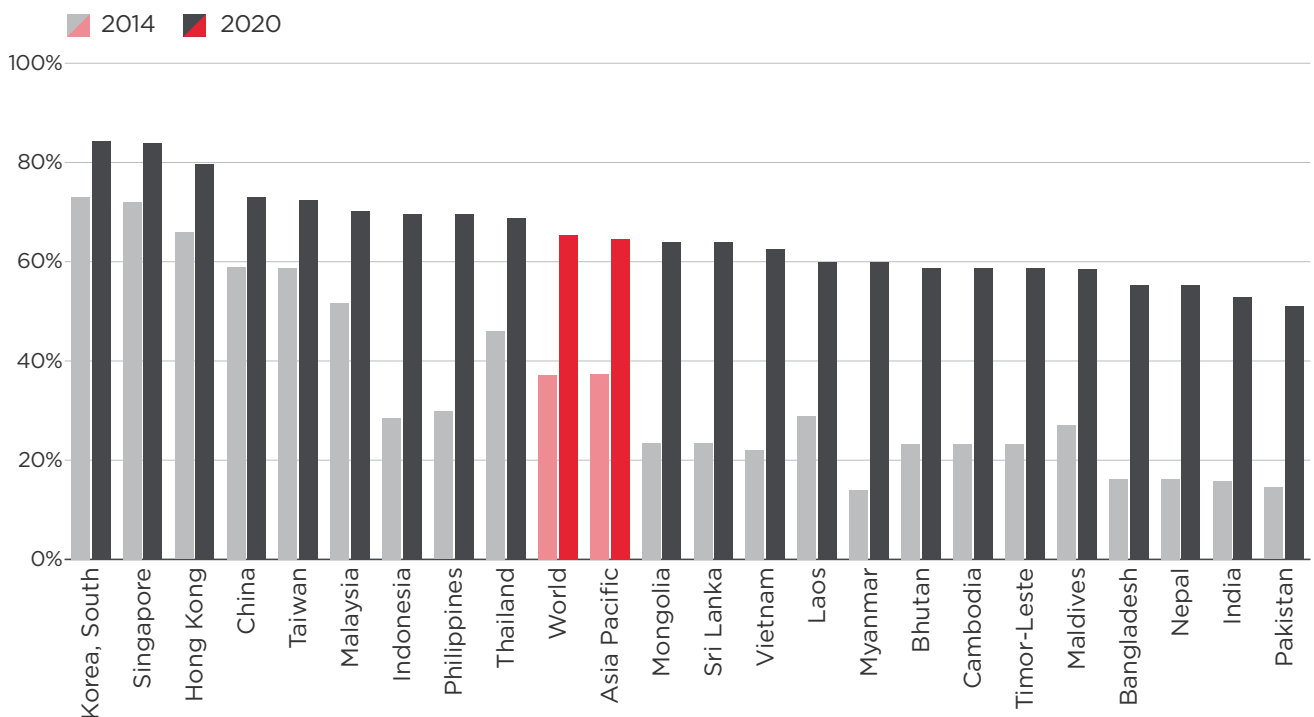

Figure 12: Smartphone adoption as a percentage of connections
Source: GSMA Intelligence

Although these barriers are being addressed by many internet players and mobile network operators through services such as Facebook Lite[7] and initiatives such as making faster and lighter mobile web pages,[8] 2G will be the primary mobile internet access for more than 800 million subscribers globally in 2020 (and more than 60% of those will be in Asia). Therefore, creating content that is easy to use on feature phones and slower networks is key in ensuring that these users remain engaged with internet content until they migrate to more advanced handsets and networks.

[7] Facebook Lite is a stripped down Android App aimed at developing countries. It does not use data heavy elements of Facebook (such as video) but enables a faster connection on 2G networks
[8] Google has been testing a method of providing streamlined search results and optimized web pages aimed at those using slower connections such as 2G; following tests in Indonesia, further tests are planned for India and Brazil

5. Implications

As non-users become digitally literate and aware of relevant content, there will likely be demand for more local and hyper-local content, i.e. services that meet the needs of non-users rather than the current entertainment-centric offerings that prevail today.

In order to meet these demands, internet content providers (including mobile network operators) will need to work with local service providers familiar with hyper-local needs[9]. In addition, local entrepreneurship needs to flourish to better address these local demands. Local start-ups are likely to be one of the primary drivers of hyper-local content services — simply because of the enhanced level of local knowledge that these entrepreneurs bring with them (for example, building on the localised content created through social platforms and creating tailored solutions and apps that address local education or transportation requirements).

In the stakeholder survey, the top barrier to the uptake of local content is digital literacy, followed by funding for local start-ups and implementation challenges. These barriers will need to be addressed to ensure that once non-users come online, the relevant content is available to them.
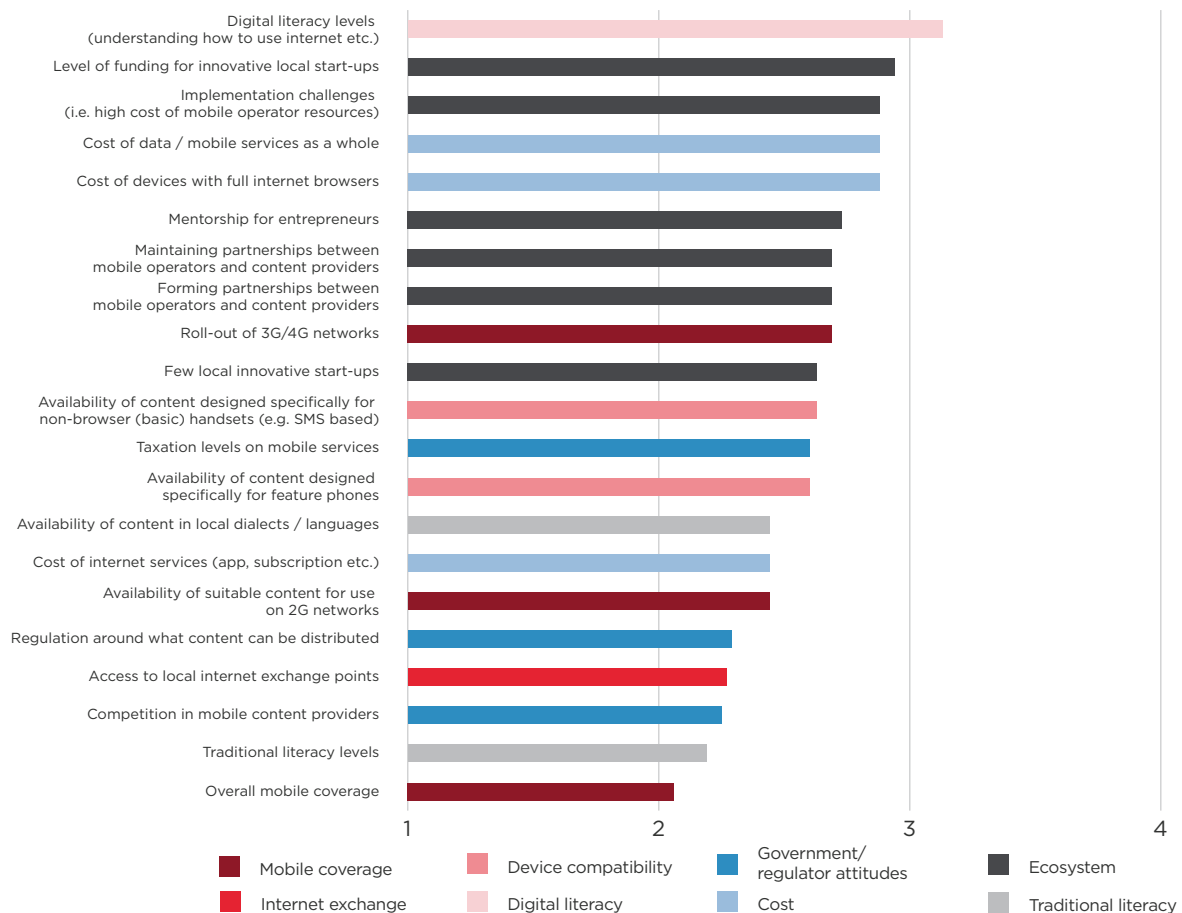

Figure 13: Barriers to the uptake of local content (1 = not a barrier, 4 = significant barrier)
Source: stakeholder survey

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[9] GSMA, *The role of VAS vendors in Mobile for Development* (2015)

The innovation and investment ecosystem in Asia has been growing fast in the past few years, but it is still behind North America and Europe. The amount of investment raised by companies in Asia between 2005 and 2014 represents 9% of total investments raised. After China and India, Malaysia was the country that raised the most funding and made the most investments (see Figure 14).[10] The top five sectors of companies in emerging markets in Asia Pacific are e-commerce, software, mobile, education and games.
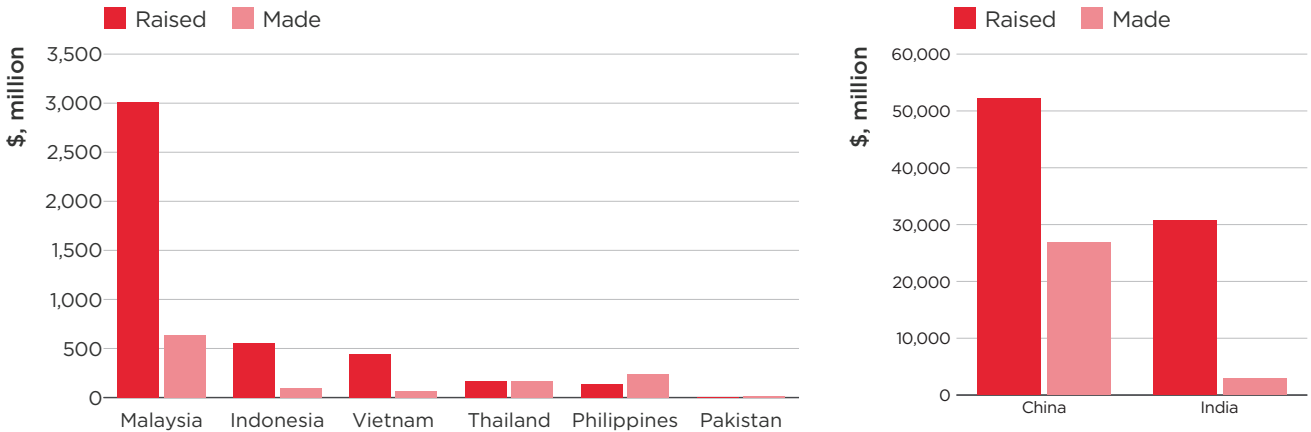

Figure 14: Investments raised and made[11] in Asian emerging markets between 2005 and 2014
Source: GSMA Intelligence, CrunchBase

[10] Numbers are based on the crowd sourced CrunchBase database of companies; as such, this is a sample and not meant to represent the actual number of firms in operation
[11] Investments raised is the amount of capital that has been invested in a country (from domestic or international sources), while investment made is the total amount of capital that country invested (either domestically or internationally)

According to a previous GSMA Intelligence report,[12] investors face two challenges related to the funding of start-ups in emerging markets: flow of investment and lack of early stage funding. The flow of investment into emerging markets still appears to come mostly from international providers; in Asia this is true especially in South Asia. However, in East Asia and Pacific the trend seems to be changing, with China being the main investor in the region.
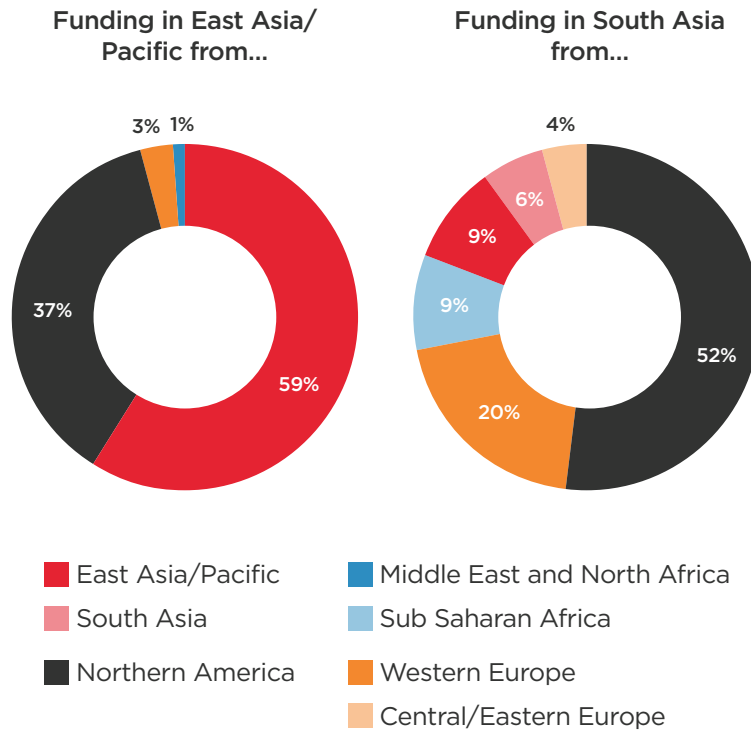
Funding in East Asia/Pacific from...

Funding in South Asia from...

- East Asia/Pacific
- South Asia
- Northern America
- Middle East and North Africa
- Sub Saharan Africa
- Western Europe
- Central/Eastern Europe

Figure 15: Where does the funding come from?
Source: GSMA Intelligence, CrunchBase

The second funding challenge is lack of early-stage funding, specifically in the pre-seed and seed stages (roughly below $250,000, but especially below $100,000), where only 8% of investments fall into emerging markets in Asia. The main barriers that investors face when investing in ICT in emerging markets are a lack of compelling business models to monetise technical innovation and the lack of business skills, experience and exposure of entrepreneurs.

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[12] GSMA Intelligence, *Financing Innovation* (2014)

5.1 Role of mobile operators

Mobile operators have a key role to play in developing accurate awareness, improving digital literacy and supporting the development of local content for consumers.

Awareness and digital literacy

Building an accurate awareness of the internet will require the efforts of multiple stakeholders (mobile operators, governments and content providers) who need to work together to deliver awareness-building campaigns and literacy training programmes. For example, mobile operators can leverage existing retail channels to provide training to rural communities as well as using basic technologies, such as SMS or IVR, to deliver tutorials to a wider subscriber base.

For example, in 2014 in India Idea Cellular launched the Idea Internet Network (IIN) campaign that aims to demonstrate that a person can actively learn the skills they choose, better themselves and achieve success through the internet. The IIN advertisements show people learning topics such as engineering, algebra, foreign languages and business skills, solely through Idea internet.[13]

Although this type of campaign will undoubtedly help educate non-users as to the benefits of using the internet, it is important not to overstate the use cases to prevent any disappointment once consumers begin using the content advertised.

Another example of a mobile operator working to increase awareness and improve digital literacy is Uninor in India. Uninor launched the "Internet on Wheels" initiative to educate people about the benefits of the internet and increase adoption of the mobile internet in rural areas in India. A branded van will be travelling across rural areas of Uttar Pradesh, Bihar & Jharkhand, Andhra Pradesh, Maharashtra and Gujarat to teach customers about the mobile internet, how to access it on feature phones, how to navigate on a smartphone and how data packages work.

In addition, Uninor opened more than 200 customer education hubs to train customers on mobile services. These centres will act as knowledge and awareness centres where existing and potential customers can get information on Uninor's voice and internet services. In these hubs, any query related to mobile phones can be resolved. Uninor developed an in-house curriculum to train the customer relationship executives, 50% of whom are women, at the hubs. Uninor plans to increase the number of hubs to 500 by the end of 2015.

Governments have also been active in Asia in creating awareness of digital services and training citizens to use available applications. For example, in India, the government has launched a digital literacy campaign in partnership with Intel as part of Digital India. Three million individuals have been trained as part of the initiative. The aim is to facilitate "technology-driven inclusive growth" and to achieve 100% digital literacy. Mobile operators have an opportunity to partner with the government on initiatives like this to promote digital literacy training focussed more on mobile phones, rather than desktops.

[13] Idea, *Idea Internet Network* (2015)

Innovation ecosystem

In order to create self-sustaining innovation hubs like Silicon Valley, Tel Aviv, London and Berlin, it is important to focus not just on providing capital but also on educating and developing business skills so that entrepreneurs are not only tech focused, but are able to translate an idea into a true business model and pitch it in the right way to investors.

Fostering entrepreneurship can lead to new business opportunities for mobile operators. Many operators are already experimenting with innovative services through direct involvement in innovation hubs, investing in or partnering with start-ups and exposing assets such as service delivery platforms, billing platforms and consumer relationships.

For example, the three biggest operators in Thailand, dtac, True and AIS, all have incubator programs: dtac Accelerate, True Incube and AIS The StartUp. dtac Accelerate is a four-month bootcamp that will help start-ups accelerate their success through one-to-one mentoring with experts in the tech industry, an investment opportunity (from $15,000 to $45,000) and business support from Telenor Group. Start-ups will have free access to the co-working space, will attend talks with speakers from Silicon Valley and Asia, and have the opportunity to pitch at Telenor Digital Winners and to leading VCs. The True Incube program will select five teams and will provide them with $15,000 funding, a 90-day bootcamp, business support (such as media support, business partnerships and distribution channels) and a co-working space. One of the teams will have the opportunity to visit and study at 500 Startups in Silicon Valley. Lastly, through The StartUp, AIS will provide mentorship to candidates, a co-working space, English and presentation skills and will connect candidates with investors.

In the Philippines two operators, Globe and Smart, have incubator programs, Kickstart Ventures and Ideaspace Foundation. Kickstart Ventures is a fully owned subsidiary of Globe Telecom. It provides funding and a six-month incubation period to selected start-ups. Ideaspace Foundation selects start-ups to incubate for six months, and each one receives mentoring and $12,000 of funding (see Country overview: Philippines).

In Malaysia DiGi has launched DiGi Challenge for Change (DiGiCFC), which helps stimulate the app ecosystem. DiGi will select four winners with the best app idea in each of the following categories: discovering culture, learning and edutainment, health and wellness, and connected citizens. The winners will each receive $1,500 and a smartphone with a DiGi plan. Once the ideas have been selected, app developers will develop the idea, and for each idea there will be an app developer winner who will receive $7,000 in cash.

An example of an operator partnering with a start-up is Globe in the Philippines with HOOQ. HOOQ is a Netflix-type service created from the joint venture between Singapore Telecommunications (Singtel), Sony Pictures Television and Warner Bros Entertainment. Through this partnership launched in February 2015, Globe and HOOQ deliver video-on-demand services. Filipinos are the first in Asia to get access to Hollywood and local content movies. Globe customers can access unlimited online streaming and an offline viewing option for top Hollywood and Filipino movie and television content, via computers,

smartphones and tablets.[14]

Lastly, looking at examples of exposing operator assets, we see that all three operators in China – China Mobile, China Telecom and China Unicom – have developed service delivery platforms to share their technical infrastructure and to attract local developers. Operators can expose APIs and other services through such platforms (for example a common API for SMS delivery) to better attract developers that otherwise would have little incentive to embed core network services into their apps.

Other parts of the ecosystem are also enabling innovation, giving mobile operators further partnering opportunities. Mozilla is one example and has developed a mobile content creation software, Webmaker, with the aim of growing web literacy across the developing world. Webmaker allows anyone with a basic smartphone to build an app by choosing a range of "bricks" and mixing them together on a drag-and-drop interface. Through this software, building an app becomes an intuitive process that is accessible to anybody willing to try, even for mobile users who have no particular IT skills.

The support of innovative start-ups requires efforts from across the ecosystem, rather than relying on an individual part of the market. Although mobile operators can bring expertise, mentorship, delivery platforms and, to a certain extent, funding, these activities need to be supported by other players. Governments, major service providers, device manufacturers and investors all have a role to play in enabling the creation of local and hyper-local content — either through partnering in incubation programs, providing technical and business skills and/or financial support.

[14] Globe Telecom, *HOOQ debuts in the Philippines in partnership with Globe Telecom* (2015)

About GSMA Intelligence

GSMA Intelligence is the definitive source of mobile operator data, analysis and forecasts, delivering the most accurate and complete set of industry metrics available.

Relied on by a customer base of over 800 of the world's leading mobile operators, device vendors, equipment manufacturers and financial and consultancy firms, the data set is the most scrutinised in the industry.

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GSMA Intelligence would also like to thank all those who participated in the stakeholder survey.

About GSMA Digital Inclusion

GSMA's Digital Inclusion programme supports the connection of an additional two billion people to the mobile internet by 2020. The programme focuses on working with mobile operators, development organisations and governments to address the barriers to mobile internet adoption through network infrastructure and policy, affordability and tax, digital literacy and local content.

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