

# Understanding Digital Content and Services Ecosystems: The Role of Content and Services in Boosting Internet Adoption

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Internet adoption continues to vary widely across countries. The average Internet penetration rate in Africa is 14 percent—vastly lower than the 85 percent rate in North America, according to the World Bank. Given the well-recognized role that wider Internet adoption plays in accelerating economic growth, raising Internet adoption rates is an imperative, particularly for developing countries. Barriers to Internet adoption also vary across countries. Although the lack of affordable infrastructure is considered to be a major obstacle, a lack of local, relevant digital content and services is equally important. According to a Pew Research Center survey, 34 percent of offline individuals in the United States mentioned that the Internet was not relevant to them.<sup>1</sup> Eighty percent of the Wikipedia articles are written in just 28 languages, whereas 80 percent of the world's population speaks one of 80 languages. Even the quantum of content available per user continues to be widely uneven. Akamai data show that in the United States, page views in the media and entertainment category peak at 282 per Internet user, while in Africa this number dips to 32 per user—highlighting the dearth of content relevant to African users.<sup>2</sup>

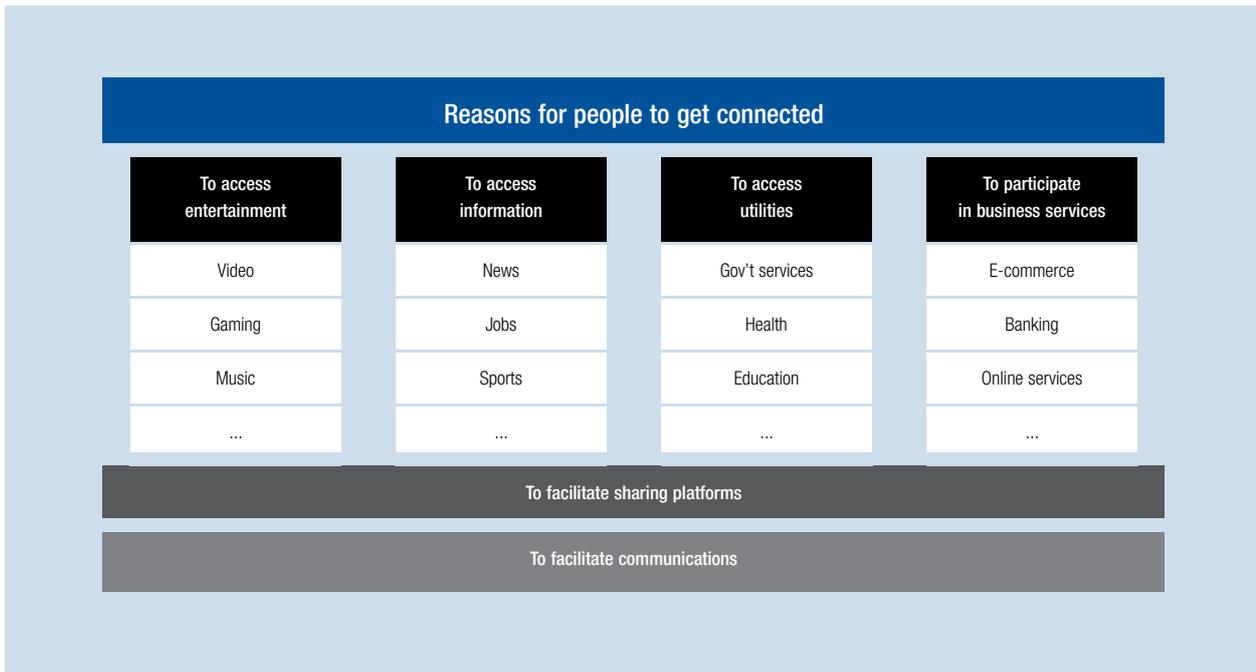
Ensuring a sustainable supply of local, relevant digital content creates incentives and reasons for subscribers to get online; such content is an imperative for driving Internet adoption for the 60 percent of the population not currently connected. Beyond the availability of such content, because creating and maintaining digital content continues to be an expensive proposition, it is important to understand how to ensure the sustainability of these ecosystems.

This chapter seeks to answer fundamental questions regarding the development of digital content and services ecosystems. It defines the building blocks of such systems, identifies the major players in providing those building blocks, and analyzes the lessons of the historical evolution of the ecosystems of different countries, focusing on the United States, Germany, and the Republic of Korea. A data-driven model for measuring the maturity and economic sustainability of digital content and services ecosystems is devised, and insights applicable to future paths for many developing countries are derived from the resulting data. Finally, the chapter discusses the pivotal role that public- and private-sector stakeholders can play in jumpstarting ecosystems in developing countries.

## DEFINING THE DIGITAL CONTENT AND SERVICES ECOSYSTEM

In assessing the state of the digital content and services ecosystem, we recognize three major dependencies: supporting infrastructure, devices, and local-language support. A strong content ecosystem cannot be developed without the availability of strong fixed and mobile infrastructure. Additionally, the devices and hardware components that are available have a

Figure 1: Digital content and services



Source: Strategy&

significant impact on the type and nature of the content being consumed, and even on how frequently it is consumed. Finally, support for local languages and character rendering by major operating systems and platform vendors plays a critical role in driving local content ecosystems. Although these factors are both interdependent and important, the content ecosystem is assessed separately from these variables, primarily in order to determine the differences and patterns that exist in the evolution of content and services ecosystems, given the steady improvement in other drivers such as format support.

From the perspective of a consumer, the digital content and services ecosystem is composed of six major categories: entertainment, information, utilities, business services, sharing platforms, and communications (see Figure 1). Four major players can have a significant role in the development of the ecosystem: governments, brands, operators, and content developers.

**HOW DIGITAL CONTENT AND SERVICES ECOSYSTEMS EVOLVE**

The evolution of the digital ecosystems in the United States, Germany, and Korea was examined to better understand how digital content and services can influence Internet adoption. The experience of these countries illustrates the similarity of the sequencing of content that generates reasons to get online, although the process of evolution differs among various countries and markets. In addition to the ways in which the content and services ecosystems evolved, the sustainability of these ecosystems was assessed to determine

who funded both the initial development and then the subsequent monetization of these services. The cases show that the development of the ecosystem was generally in sync with the underlying economic structure of the country, thus ensuring sustainability.

**The United States**

In the United States, communication services such as email, chat, and messaging were the early motivators that drove consumer adoption. Part of this adoption was facilitated by the push by enterprises to move communications online—a push driven mainly by the associated productivity gains and cost savings yielded by efficient communications. As adoption of communication services and Internet increased, shareholders funded the development and expansion of several consumer-focused Internet services, such as AOL, whose Instant Messenger service reached more than 22 million unique users within three years of its launch in 1997. The rush at this stage was to gain access to viewers, which fueled the first dot-com boom and brought companies such as Yahoo to the fore—a monetization model was then less of a priority. As the proliferation of information services continued, platforms emerged to enable ad-subsidized models, which provided a monetization mechanism for content developers and further fueled the content boom. In addition, between 1995 and 2001, entertainment and commerce became key drivers of Internet adoption, providing more avenues for content monetization and sustainability. This resulted in the emergence of players such as Amazon, eBay, and Netflix. At the same time, search platforms such as Google were created to allow

people to seek relevant information rather than finding it pre-aggregated.

As the US digital content ecosystem matured after 2001, social network services such as Friendster, MySpace, and Facebook, along with the professional social network LinkedIn, became dominant reasons for Internet use. The development of video streaming platforms such as YouTube (set up in 2005) also fueled Internet growth and use—particularly by increasing the time spent online. In addition, as consumers started spending more time online, business services accelerated their adoption of Internet as a service channel, leading to growth in business-to-consumer services such as financial services, e-government services, and customer care.

The first phase of the US content and services ecosystem was therefore powered by enterprises moving online for productivity gains, followed by shareholders funding development and growth of services. This development phase was followed by monetization through e-commerce or ad-funded models. The subsequent phase involved enterprises moving more services online to enhance productivity and customer experience. The cycle of services moving online, followed by monetization and growth, continues to drive new content categories such as Uber and Airbnb, which take spending in the physical economy and monetize it in the digital economy.

### Germany

Traditional media outlets provided an early motivator for consumers as Germany's digital content ecosystem began to evolve between 1995 and 2001. Spiegel Online was created in 1994, followed by Zeit Online, Netzeitung, and others. Unlike in the United States, however, in Germany the government stepped in very early to fund some of the country's content and services development. For example, ELSTER, the e-tax-return government service, launched in 1999. It filed more than 5.6 million applications for tax statements electronically that year.

As the German digital content ecosystem continued to evolve after 2001, social networks such as StayFriends.de (for graduates) and Xing.com (for professionals) proliferated, as did travel sites including HolidayCheck, gaming communities such as GameDeull, dating services such as ElitePartner, e-payment systems such as GiroPay and Sofort, and online shopping services such as bo.com. Along with the interest of media and retailers, the government's interest remained keen, as evidenced by the development of the Deutschland-Online e-government strategy. From 2007 onward, as the German digital ecosystem matured, networking, blogging, gaming, entertainment, and shopping services proliferated, and the digital economy was driven by subscriptions for online newspapers,

games, streaming, and service, along with online advertising.

### The Republic of Korea

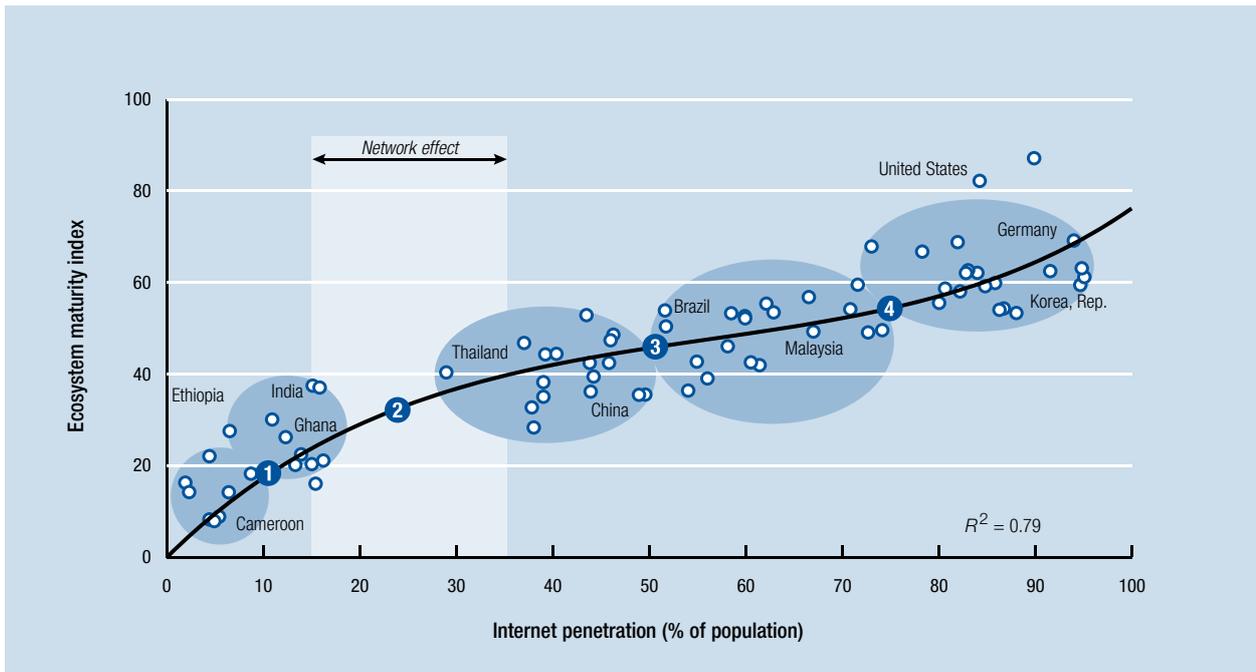
Unlike in the United States and Germany, gaming was one of the major motivators driving Internet adoption during Korea's early evolution—fueled in part by early government incentives and the country's emphasis on and support of broadband infrastructure. Multi-player online game providers Nexus, Lineage, and Hangeam launched in 1996, 1998, and 1999, respectively. In just three years, Lineage was the leading worldwide subscription-based online game, with more than 3 million subscribers—mainly in Korea—and 250,000 concurrent users. Online gaming became so popular in Korea that multi-player gaming competitions were broadcast on national television, starting with the Starcraft competition in 2002. As Korea's digital ecosystem evolved further, from 1999 to 2006 the national government played a key role in improving digital literacy and driving adoption, involving 11 major e-government initiatives, including Cyber Korea 21, e-Korea Vision 2006, e-procurement, customs e-clearance, a Knowledge Portal, and the Ten Million People Internet Education Project.

Alongside gaming and government services, education emerged as a key driver of Internet adoption in the country, with online tutorial sites such as Megastudy growing rapidly. In addition, government education initiatives such as Education Broadcasting Services, launched in 2004, led to growth in the online learning market earlier than in most Western countries. In essence, the early Korean ecosystem was driven primarily by government funding and subscription services for education or gaming. Advertising and e-commerce models took longer to arrive on the scene and were mainly focused on mobile advertising.

### Factors of success

A key contributing factor to the success of ecosystem development in the United States, Germany, and Korea was the rapid achievement of economic sustainability. The digital economy was in sync with the underlying economic structure in each country. The US economy is largely driven by household consumption, which has contributed around 70 percent of GDP over the past 10 years—compared with an average of 58 percent in member countries of the Organisation for Economic Co-operation and Development, including Germany. The desire to capture an early-mover advantage in the large consumer spending market encouraged initial shareholder investments in the US digital ecosystem, which was followed by the development of ad-subsidized models, resulting from the diversion of physical advertising spending to digital advertising spending early on in the evolution. In both Germany and Korea, by contrast, government support played a relatively larger role in driving Internet adoption and building reasons

Figure 2: Ecosystem maturity vs. Internet penetration



Source: Strategy&.

Note: **(1) The content foundation** transition phase shows entertainment increases 2.8-fold; information increases 2.2-fold, utilities increase 1.3-fold; **(2) the network effect** transition phase shows sharing platforms increase 3-fold and entertainment is still the largest reason for people to get connected; **(3) the monetization** transition phase shows sharing platforms increase 2-fold, utilities increase 1.3-fold, online ads expand to 15 percent of total ads, and e-retail expands to 2 percent of total retailing; **(4) the content diversification** transition phase sees business services increase 2-fold, the ecosystem is diverse and balanced, online ads expand to 23 percent of total ads, and e-retail expands to become 5 percent of total retailing.

to get connected, creating the momentum to bring their digital content ecosystems to the critical inflection point where the virtuous cycle of content and user engagement enabled commercial drivers to assume a larger role. Additionally, subscription-based models—either gaming or education—played a critical role in enabling content companies to sustain and fund early growth.

## JUMPSTARTING DIGITAL CONTENT AND SERVICES ECOSYSTEMS

To understand how stakeholders can best jumpstart digital content and services ecosystems, it is necessary to define and measure the maturity of a country's ecosystem, to identify the models that can ensure economic sustainability, and to consider what steps public- and private-sector stakeholders can take to encourage content creation and drive Internet penetration rates higher.

### Defining ecosystem maturity

*Ecosystem maturity* is defined as a function of both the depth and the diversity of the different content categories within a certain country. The greater the depth of available, relevant content, and the more diverse the types of available content, the higher the maturity ranking of the ecosystem. We calculated an ecosystem maturity index score for 75 countries to understand the different stages of ecosystem maturity (see Box 1). When

we juxtapose the countries' maturity scores with their rates of Internet penetration, we can infer four transition phases (Figure 2).

- 1. Content foundation.** This transition phase is about moving from an initial stage in a country's evolution to a stage where the right content foundations are in place. Evolution in the initial stages of development is supply driven, suggesting that if you build an ecosystem, users will start to go online in increasing numbers. On average, Internet penetration increases from 5 percent to 13 percent in this stage, and the ecosystem maturity index increases from 14 to 27. The primary forms of content that motivate people to get connected are information and entertainment, but the secondary motivators include utilities, such as e-government services. This transition is about building foundations for further content ecosystem development. Cameroon is an example of a country that has yet to undergo this transition. Average YouTube views of local channels in Cameroon are 2.6 per online user, compared with 6.6 in Ghana, which is post-transition. The case is similar in e-government services. Based on the Online Service component of the UN's e-government index, Cameroon scores 0.20, compared with 0.32 for Ghana.<sup>3</sup>
- 2. Network effect.** This transition phase is about leveraging the network effect so that services

## Box 1: Ecosystem maturity index methodology

For each of the six content categories we identified—entertainment, information, utilities, business services, sharing platforms, and communications—we constructed proxies for content maturity (see Table A for the data sources of the proxies). We applied a logarithmic filter on some nonlinear proxies—such as YouTube videos, Wikipedia pages, and online newspapers—to transform them into a more linear distribution and to ensure comparability across proxies and categories. Each proxy was indexed on a scale of 0 to 100. Weights were applied to each, based on their applicability

and relevance, and we then calculated the weighted average to get one subindex per category. We used these data to create two metrics per country for each proxy: content depth (the average of all six subindexes) and content variability (the standard deviation of the six subindexes). We define the *ecosystem maturity index* of a country as a function of both content depth and content variability. The higher the content depth and the lower the content variability, the higher the ecosystem maturity index score. For countries with low content depth, content variability is not considered.

**Table A: Data sources for proxies**

Content category	Proxy	Source	Publisher	Year	Weight (%)
<b>Entertainment</b>	# of YouTube videos	www.socialbakers.com	Social Bakers	2014	67
	Online gaming market as % of GDP	Global Entertainment and Media Outlook 2014–2018	PwC	2013	33
<b>Information</b>	Web-based information about job opportunities	2013 Web Index Dataset	WEB Foundation	2013	20
	# of Wikipedia pages in local language	2013 Web Index Dataset	WEB Foundation	2013	40
	# of online newspapers	www.onlinenewspapers.com	Online Newspapers	2014	40
<b>Utilities</b>	Government Online Service Index	<i>E-Government Survey 2014</i>	United Nations	2014	60
	E-Participation Index	<i>E-Government Survey 2014</i>	United Nations	2014	20
	Web-based information on public health services	2013 Web Index Dataset	WEB Foundation	2013	10
	Impact of information and communication technologies (ICTs) on access to basic services	<i>The Global Information Technology Report 2014</i>	World Economic Forum	2014	5
	Internet access in schools	<i>The Global Information Technology Report 2014</i>	World Economic Forum	2014	5
<b>Business services</b>	Internet retail as % of total retail	Retailing: Euromonitor from Trade Sources/National Statistics	Euromonitor	2013	60
	Government e-commerce promotion initiatives	2013 Web Index Dataset	WEB Foundation	2013	15
	Information used for agricultural innovation	2013 Web Index Dataset	WEB Foundation	2013	5
	Business-to-consumer Internet use	<i>The Global Information Technology Report 2014</i>	World Economic Forum	2014	15
	Firm-level technology absorption	<i>The Global Information Technology Report 2014</i>	World Economic Forum	2014	5
<b>Sharing platforms</b>	Facebook penetration	www.internetworldstats.com	Internet World Stats	2012	100
<b>Communications</b>	Messaging application downloads per capita	www.appannie.com	App Annie	2014	100

become more valuable to users as more people use them. Internet penetration rates typically follow an S-curve path, suggesting that there is a point of critical mass after which consumers' Internet adoption accelerates significantly as the network effect takes hold. It takes, on average, four years for Internet penetration to increase from just below 5 percent to just above 15 percent. From that point, however, it takes only two years on average for penetration to increase from 25 to 35 percent—the point at which critical mass is reached.

In this transition, Internet penetration increases on average from 13 percent to 43 percent and the ecosystem maturity index increases from 27 to 40. Although entertainment is still the most popular content in this transition, sharing platforms also experience a significant jump (of 2.9 times), which inherently leverages the network effect. Facebook's share of the online user base in Ghana (which is at the beginning of the network effect phase, the second cluster in Figure 2) is 52 percent, for example, compared with more than 90 percent in Thailand (which is in the third cluster of Figure 2).<sup>4</sup>

- 3. Monetization.** In this transition phase, a sizeable online user base is reached. Internet penetration increases on average from 43 percent to 62 percent, and the ecosystem maturity index increases from 40 to 50.<sup>5</sup> We witness a more or less consistent increase in content across all categories of reasons to get connected (the increase ranges from 1.1 times in entertainment to 1.5 times in sharing platforms). Business services still rank relatively lower than other reasons. (Business services score 36 in the ecosystem maturity index, compared with an average in the 60s for other reasons once this transition is complete.)

Content developers look for ways to make their content profitable. The market for digital advertisements begins to grow during this phase (accounting for around 15 percent of the total advertising market on average), thus providing a model for achieving economic sustainability in the ecosystem (sustainability models are discussed further in next section).

- 4. Content diversification.** This transition is about intensified content diversification through business services. In this phase, Internet penetration increases on average from 62 percent to 85 percent, and the ecosystem maturity index increases from 50 to 61. With a large base of online users, businesses now see value in offering Internet services—either as a way of enhancing the scale and productivity of existing business models or as a way of creating new Internet business models. Overall business services increase by 1.8 times in this transition. Internet retailing, which is used as a

proxy for measuring the depth of the general online business services category, begins to approach 5 percent of retail spending in the economy—the point where the online business is large enough to take on a major, self-sustaining role in driving Internet usage and growth.

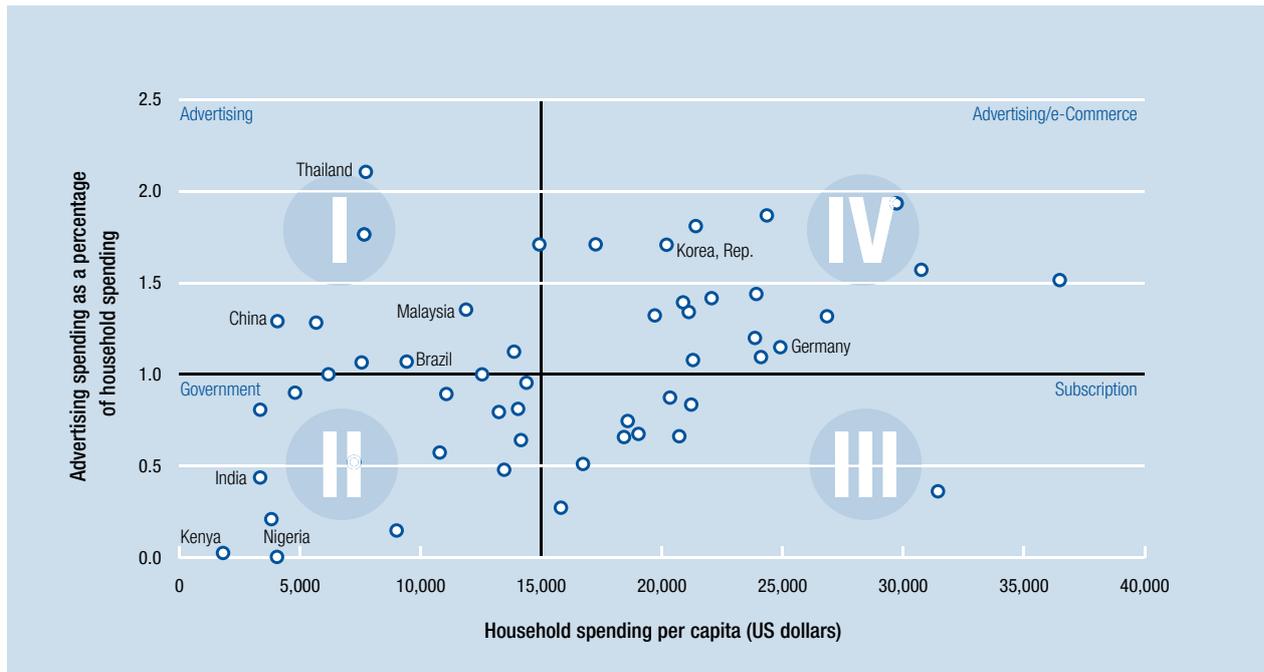
### Economic sustainability models

Within each of the stages of ecosystem maturity, a different economic model should sustain development. Sustainability is closely linked to the country's underlying economic structure, in addition to the availability (or lack thereof) of a sizeable advertising market. We identify four sustainability models (Figure 3).

The principle here is that the more households spend on consumables, the more brands are willing to spend on advertising to capture the household spending. The quadrants of Figure 3 consider the relationship of household to advertising spending:

- **Quadrant I: Advertising.** Although markets in this quadrant have low household spending per capita, the advertising market is relatively large. It is mainly driven by TV advertising (which constitutes an average of 40 percent of total advertising spending in these countries). To sustain the ecosystem, content providers can channel advertising spending into digital channels, providing a more efficient, engaging, and relevant way for advertisers to target their audiences. In such conditions, an advertiser-subsidized model could potentially work.
- **Quadrant II: Government.** In these markets, household spending and the advertising market are both small. Sustainability could be achieved through government spending, providing basic digital services (such as e-government, health, education). Governments can play an important role in creating momentum for widespread Internet adoption by providing compelling services. These would attract users by reducing the impediments to using government services, and they would also improve the services' efficiency. However, such a model cannot be sustained in the longer term. It is also difficult to apply to other content categories (entertainment, information, business services, and sharing platforms). Governments can be a trigger, but eventually other sustainability models need to take over.
- **Quadrant III: Subscription.** Typically, when household spending per capita is high, advertising spending is similarly elevated because brands are competing to maximize their share of household expenditures. However, there are a few exceptions. In the United Arab Emirates, for example, household spending per capita is around US\$32,000 per year but advertising spending is only 0.4 percent of that amount. In such markets, households are

Figure 3: Economic sustainability models



Sources: Household spending per capita: World Bank *World Development Indicators* 2013; advertising spending: PwC 2014.  
Note: Black lines indicate averages.

willing to pay for the content they consume, and thus subscriptions-based models can sustain the ecosystem.

- **Quadrant IV: Advertising/e-Commerce.** In markets with high household spending per capita and a relatively large advertising market, sustaining ecosystem development is usually achieved by advertising-based models, coupled with vibrant e-commerce services.

### Jumpstarting content ecosystems

Three key groups of stakeholders are involved in creating a vibrant and sustainable content ecosystem: (1) the government—both in its role as a policymaker and as a provider of essential services online; (2) the content developers, which range from the small startups in the country to large global companies; and (3) the enablers—the operators and brands that provide either the distribution or, in some cases, the monetization models to sustain the content ecosystem.

Any emerging-market country seeking to jumpstart its digital content ecosystem not only has to ensure coordinated action among the three sets of stakeholders but also has to align these actions both with the state of development of the ecosystem and the sustainability model supported by the local economy.

### The role of the government

The government has a dual role to play in boosting the content ecosystem in a country—first as a policymaker,

whose function is to create an optimal environment in which content ecosystems can flourish, and second as a provider of essential services within the country. In the role of policymaker, two things matter: the state of the factor markets—the skilled labor, capital, and technology—for local content development and the protection of digital copyright.

If the markets are in a nascent stage of development, it is highly likely that they lack the functioning factor markets that are needed to create digital content. In such cases, the role of policymaker is to facilitate the creation of such markets.

Creating efficient capital factor markets could involve providing seed capital for local content development. An example of such an initiative is the Tandaa grants program, run by the Kenyan government. The program provides a small grant to local content developers to create digital content and, by 2014, it had funded more than 30 initiatives.<sup>6</sup>

Equally important is the presence of efficient labor factor markets, ensuring enough high-quality talent and skills to jumpstart the local content ecosystem. An example of an initiative that addresses the labor factor is twofour54 Abu Dhabi, which incubates the development of Arabic-language media and entertainment through a training academy, production facilities, and creative support.<sup>7</sup> In addition, countries can leverage their expatriates' talent pool, based in more-developed technology markets. An example of such an initiative is The Indus Entrepreneurs (TiE), which started as a networking forum for entrepreneurs in Silicon Valley with

roots in the Indian subcontinent, and has played a key role in driving the digital ecosystem in India through its local chapters and forums.<sup>8</sup>

Finally, efficient technology markets can best be achieved by working with global platform companies to increase assistance for local-language support and character rendering—a key factor in driving the adoption of local-language content. An example of an initiative that addresses local-language issues is the attempt by technology companies to support the Burmese language as Myanmar begins to connect with the global Internet economy.<sup>9</sup>

Another key challenge for content developers in moving online has been the lack of suitable copyright protection and the state of disarray of digital rights management within the country. In many emerging markets, digital piracy is rampant. Consumers are not disposed to pay for content because it is available for free through pirated side-load channels or downloads. As countries improve their overall copyright regimes, updating them to increase digital property protection is critical to enabling more and more content developers to shift their content online. An example of this is the Indian Copyright Act update that occurred in 2012 to support digital copyright protection.<sup>10</sup>

Beyond creating a favorable environment, governments play a key role in building essential services content. In many emerging markets, governments go beyond delivering traditional public services because they continue to be the primary providers of basic health and education services. Developing online content in these categories, similar to that undertaken by the Korean and German governments, will be a good starting point.

In addition, several of the low-frequency but necessary and unpleasant activities that require spending significant time in government offices (e.g., filing taxes and accessing administrative records) can be put online. In markets such as India, the government is attempting to use online services to reduce costs, remove bureaucratic hurdles, and minimize the leakage of resources and opportunities for corruption.<sup>11</sup>

Developing a coherent vision, however, remains a major challenge for many governments. Where capabilities are limited, governments typically partner with intergovernmental organizations to create the required vision and ensure its successful implementation. The World Bank, for example, is leading a project in Moldova to deliver selected e-government services and shared applications through multiple channels. Significant results have been achieved: citizen uptake of e-government services grew from 7 percent in 2010 to 22 percent in 2014. Public support for e-government grew from 53 percent in 2010 to 65 percent in 2014, about 1,000 people were trained in the e-government center, and some 700 government datasets were made available.<sup>12</sup>

### ***The role of content developers***

A key lesson from the analysis above is that it is necessary to overbuild content, especially in early stages of developing the ecosystem. In certain content categories—such as sharing platforms, which are subject to large network effects—global web companies will provide a surplus of content despite uncertain monetization prospects.

Global platform companies are willing to invest in local market development because they are seeking to capture early-mover advantages—again, despite unclear monetization prospects. Players such as Google, Facebook, Twitter, WhatsApp, and Line are rapidly expanding in emerging markets through such investments, with platforms tweaked for local usage. These global companies can also accelerate the growth of the ecosystem by developing support for local languages and character rendering.

However, beyond such categories in which global players can deploy, local content developers in entertainment, business services, and even information need to balance the need to overbuild with the need to find monetization platforms. Any local content developer seeking to build in an emerging market needs a favorable sustainability model—whether advertising spending in the country is significant or not.

If the advertising market is relatively large, content companies can leverage it to support initial expansion and investments. An example is Thailand, where advertising spending is more than 2 percent of household spending but digital advertising constitutes less than 1 percent of total advertising (compared with 60 percent for TV advertising). In such a market, traditional local content players can take a large part in shifting advertising money into more efficient online channels by deploying personalization, customer analytics, and insights—thereby offering a better return on investment for advertisers' dollars.

If, however, the advertising market is small, content players will have to incur the upfront investment of overbuilding in the expectation that monetization through advertisements will eventually occur. In such scenarios, shareholders of these companies can invest in the expansion—hoping to capture the first-mover advantage as the industry evolves. Another alternative is to rely on government subsidies and grants, if they exist, to build an initial revenue stream.

Several of these markets will have strong non-digital media players—print, radio, or television. Going digital will provide an opportunity for these players to expand the reach and monetization potential of their content, which—given the limited platforms available to re-purpose or re-use the content—in most cases does not get re-used.

In all scenarios, the development of a local content ecosystem will be difficult without a path to monetization. The exception will be a few categories in which global

network scale matters or in which the government can fund essential services.

### **The role of enablers**

Two key categories of enablers are critical to the evolution and sustainability of the content ecosystem: operators (which, in most markets, are the distribution channels) and brands (which support the ecosystem through advertisements).

Telecommunications operators in emerging markets are crucial to enabling the monetization of content in the early stages of evolution. Most content companies and subscribers do not have access to payment platforms or advertising dollars during the early stages. They may need to rely on operator-subscriber relationships to monetize the content that they create. Operators can support the monetization of such content by improving the aggregation, curation, and discoverability of the content. In return, they are able to capture a new revenue stream by having end-subscribers pay for this content.

An example of this support is seen in promotional campaigns such as the one launched by Malaysia's Maxis, called the #Hotlink plan, which offers subscribers unlimited usage on all social applications to stimulate user engagement. Another example is the launch of Facebook Zero promotions by operators such as Globe Philippines, which enables people to experience Internet content at no charge.

A similar initiative is the Airtel 1 rupee video portal in India, which bundles content and access, enabling people to discover content that has a predictable cost while creating a new content revenue stream for the operator.

Brands can also support Internet adoption by developing custom content beyond allocating advertising spending in support of local content efforts. An example of a brand that encourages Internet adoption is Hindustan Unilever (HUL), which created a free radio-on-demand service for villages in India that are "media dark" (where traditional media have no coverage). Any cell phone user can dial a specific number and immediately get a return call that plays 15 minutes of free radio, containing entertainment content interspersed with HUL brand advertisements. Within six months of its launch, HUL had served 8 million subscribers and played 17 million advertisements at a cost of US\$0.04 per contact. As a result, brand awareness of key products grew significantly. Within the first six months of the launch, the radio channel registered an increase of 3.2 million (5.6 percent) net advertisements compared with a decline of 2 million (3 percent) in the six months before the campaign.<sup>13</sup>

## **CONCLUSION**

Both private and public stakeholders need to take part in developing and sustaining the digital content and services ecosystem that drives digital inclusion in a country. Governments should be proactive in creating strong public-benefit content and services, especially in the early stages of a country's evolution of its digital ecosystem, when monetization models are absent. Both global and local content and service providers require upfront investments to build before they monetize. The search for viewers matters at the early stages, as does allowing stakeholders to draw in the required investments.

The key is to create a large base of online users, generate deep and varied content, support mechanisms for online advertising and payments, and build a solid case for businesses to invest in online commerce and capabilities. Once these elements are in place, all the conditions are set for the digital content and services ecosystem to become self-sustaining.

## **NOTES**

- 1 Zickuhr 2013.
- 2 Akamai Technologies 2015.
- 3 UN DESA 2014.
- 4 Internet World Stats 2012.
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- 6 ICT Authority 2014.
- 7 twofour54, no date.
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