

The emerging digital economy



June 2013:

The effects of the internet and associated digital technologies including mobile communications are both evolutionary and revolutionary. They have transformed the world, touching billions of lives in just two decades. Digital technologies continue to impact consumers, communities, institutions, governments and businesses worldwide, creating a completely new infrastructure that has allowed many people to gain access to a new and better life by breaking down economic, educational and social barriers. Businesses and industries, as we knew them, no longer exist as technology has spurred the creation of new types of connected and networked organizations, as well as value creation opportunities that cross traditional industry boundaries. Even more, they have spawned a deeply connected and digitized society which has created a completely new economy – the digital economy.

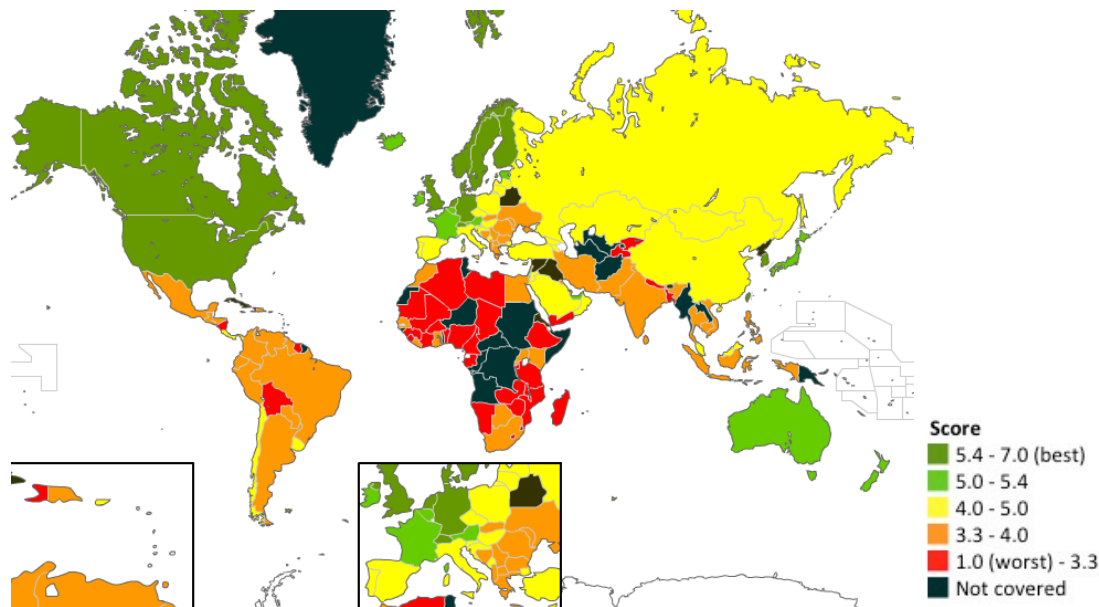
But what is the digital economy? The term has been in use since the 1990s but there is no authoritative definition. Most definitions expand on the definition of the internet economy (economic value derived from the internet) to include economic and social activities resulting from other information and communication technologies (ICT). (Source: [Infocomm Development Authority of Singapore](#)). While this latter definition is very broad, it is also very general as it could include a huge range of activities. In our work we have chosen to define the “digital economy” as social and economic activities that demonstrate the following characteristics: are enabled by internet/mobile technology platforms and ubiquitous sensors; offer an information-rich environment; are built on global, instant/real-time information flows; provide access 24/7, anywhere, i.e. are always-on and mobile; support multiple, virtual, connected networks.

Whatever definition and characteristics are chosen for the term “digital economy” the fact is that we can no longer afford not to include it as an important part of the traditional economy because it is growing rapidly every day. In this briefing we explore the impact of increasing digitization. What role does it play in the world’s economy? How does it impact growth? Where? What are the challenges and opportunities for governments, organizations and consumers in this hyper-connected world where not everyone is equally ready?

The networked readiness index map

The networked readiness map highlights the new global digital divide. It is measured by using four sub-indices – environment for ICTs (information communication technologies); the readiness of a

society to use ICTs; the actual usage of all main stakeholders; and, finally, the impacts that ICTs generate in the economy and in society.



Source: A redraw of the networked readiness index map from WEF, "The Global Information Technology Report," 2013

The economies of the digital age

In the past decade internet penetration worldwide has grown more than 566%. More than 34% of the world's population had access to the internet in 2012, and the number keeps growing. 2012 heralded two milestones: Europe passing 500 million internet users, and Asia passing 1 billion. Europe is now twice as large as the U.S. in terms of internet population; in addition, a majority of consumers in both developed and high-growth economies now own a mobile device as of the first half of 2012. As hyper-connectivity and digital technologies fundamentally change the nature of global and local economies, they are also changing business models, behaviors, and the way we communicate and share information. From developed to emerging, all economies are going digital. So what do the economies of the digital age look like?

In Action!

The second economy: Machine-to-machine technologies are technologies that allow both wireless and wired systems to communicate with other devices of the same ability. As the abilities of machines increase in terms of speed, processing power and connectivity, they are fuelling the growth of the "second economy" a computer-intensive part of the economy that is largely hidden to both organizations and consumers. This digital economy creates billions of dollars of output without the need for human workers and is growing fast. Nobody knows definitively how big the second economy is but it thought that within two to three decades it could surpass the physical economy in size. While the second economy is expanding rapidly and offers significant productivity gains, questions are being asked about whether human jobs will disappear just as fast because of it. For more insight and great examples read the [McKinsey Quarterly article by W. Brian Arthur "The Second Economy"](#).

Impacting GDP, productivity and job growth: Technology advances are creating growth and employment. But how does mass adoption of connected digital services by consumers,

organizations and government really impact the world? According to the study “[Digitization for Economic Growth and Job Creation](#)” (April 2013) from Booz & Company, digitization boosted the world’s economy by US\$193 billion and created 6 million jobs in 2011. But it is uneven growth as developed economies benefited most in terms of GDP growth, by a factor of about 25%. However developed countries get less employment growth compared with developing countries. Another recent study from Associate Professor Diego A. Comin of Harvard Business School supports the importance of technology adaption for growth and prosperity, with his findings suggesting that 70% of differences in cross-country per capita income can be explained by differences in technology adoption. ([Booz & Company](#) & [HBS Working Knowledge](#))

The new economics of money: Among many new ways to pay for goods and services, we find digital “currencies” including Bitcoin, crowdfunding, loyalty points and Amazon coins, which are increasingly competing with traditional sources of currency and funding. However, after last week’s indictments in connection with Liberty Reserve’s virtual currency operations, the future of untraceable digital currencies is likely to be subject to [greater government scrutiny](#). Perhaps a less controversial (and traceable) game-changer in the digital money space is the mobile digital wallet, which while currently focusing on replacing traditional payment methods of cards and cash, could also ultimately support alternative, virtual currencies. Many people would love to stop carrying credit cards and cash around both for security and ease, but it is one thing to wish for a digital wallet and another to embrace it. The digital wallet is seen by many as the future of payments. However, virtual-pay apps remain largely untouched and misunderstood. A new study by ComScore shows that 51% of U.S. consumers are familiar with the concept, but most have yet to embrace it. The report states that “Digital wallets represent an innovative technology that has not yet reached critical mass among consumers due to a variety of factors, including low awareness and a muddled understanding of the benefits.” (Source: [CNET](#))

[Look Out For...](#)

The social economy: Social technologies could be thought about as an economy in their own right with huge potential as more than 1.5 billion people globally are connected to the digital world through social networking sites. In July 2012 [McKinsey Global Institute](#) released a report showing that only a small portion of the potential value of social technologies has been tapped so far as the real power of these technologies is only just beginning to be understood. In the four industries (consumer packaged goods, consumer financial services, professional services, and advanced manufacturing) analyzed in the report McKinsey suggests that US\$ 900 billion – 1.3 trillion untapped value creation potential could be unlocked by social technologies. Is your organization doing enough to realize it?

The app economy: The number of apps available globally is approaching 1.8 million (all platforms combined). [ABI Research](#) suggest the global app economy will reach US\$25 billion in 2013 and by 2018, the combined app revenue from tablets and smartphones is projected to reach US\$92 billion, a 268% increase. Alone in 2012 Apple paid out US\$ 7 billion to developers, up from a cumulative US\$ 4 billion in 2011 over the lifetime of its app store. While it looks like an attractive growth economy, the question being asked is “what’s next after apps?” According to [Saar Gur, Techcrunch](#) it is smart mobile services that will be an entire new generation of services (vs. apps) that will run in the background and add value to your daily activities and experiences. But is the time yet ripe to disrupt the app industry? While waiting for these new services, ask yourself if your organization is ready to capitalize on the surging app economy. (Source: [International Business Times](#) and [Inside Mobile Apps](#))

Mobile infrastructure: There will be more mobile subscriptions than people in the world by the end of next year (Source: [BBC](#)). And Google is aiming to accelerate the growth in both mobile

and internet connectivity with its recent plans to finance, build and help operate wireless networks from sub-Saharan Africa to Southeast Asia, with the aim of connecting around a billion people in emerging countries to the internet (Source: [WSJ](#)). A country's mobile infrastructure is as important as its energy grid or transportation network in driving and supporting growth. Several studies from GMSA have quantified the potential economic effect of releasing more spectrums for mobile data in different areas of the world.

Region/Country	Additional release MHz	Assumed release year	Benefits in 2020 US\$	Job created by 2020
China	1200	2014	188bn	8.7 m
Asia-Pacific	108	2014	243bn	2.7 m
Saudi Arabia	200	2013	14bn	0.4 m
Sub-Saharan Africa	250	2014	36bn	27 m (by 2025)

(Source: [GMSA](#))

The new digital playing field

Connectedness is the new backbone and opportunity of the world. It is a new playing field for consumers and businesses and not being present in the digital world means missing out on some tremendous growth opportunities. Digitization is not just being digital. It is about having choice and the ability to change; it is about having power and transferring power from those with more to those with less. Here are just a few mind-blowing facts from the world's digital playing field, selected by [Booz&Co](#):

- [Tripadvisor](#) boasts 50 million customer reviews!
- [Wikileaks](#) has broken more investigative stories about e.g. killings, torture and detention, government, trade and corporation transparency, suppression of free speech, diplomacy and spying, ecology and nature, corruption, finance, taxes than the rest of the world, combined!
- 90,000 Egyptians signed up on [Facebook](#) to join a 'day of revolution'!
- [Taobao.com](#) boasts more than 800,000,000 online items and sells 800 every second, which is more than China's top 5 brick-and mortar retailers, combined!
- Companies can choose from 150,000,000 resumes on [Monster.com](#) equivalent to the total U.S. workforce!

In Action!

From big data to big analytics: As the new digital playing field produces an enormous amount of real-time data organizations, businesses and governments have the opportunity to extract useful knowledge and patterns of consumer and citizen behavior. Today large datasets can be stored efficiently but the ability to analyze this potentially valuable data is still a huge challenge for many, so now the focus is moving from big data towards big analytics, which are techniques to make use of the datasets. A study from [Centre for Economics and Business Research \(CEBR\)](#) estimates the value of big data to the UK economy alone could be £216 billion and 58,000 jobs in the next 5 years. Big data is further expected to add more than € 250 billion a year in value to the European public sector administration. (Source: [NESSI – Big Data White Paper](#))

Who's losing out? Results from a recent [BCG survey](#) (15,000+ SMEs) show that high-web use SMEs have experienced revenue growth up to 22% higher than that achieved by SMEs with low

or no use of the internet. Why? The internet makes them borderless; online marketing expands reach and gives valuable data about consumers and their preferences; social media makes it possible to engage in real-time dialog with consumers boosting sales and build loyalty; through cloud-based solutions they have access to a wide range of tools such as CRM, information management and customer payments as well as access to easier and quicker staff recruitment. To no one's surprise barriers such as access problems and an unfavorable business environment hold far more SMEs back in developing markets than in developed markets.

Is it safe enough? The rise of the digital playing field is exposing companies and consumer to escalating cyber security threats. As businesses and consumers become more and more digitized, they expose themselves and their information systems/infrastructure to risks including misuse of intellectual property, reputational damage and breach of privacy by unscrupulous hackers. A U.S. Government Accountability Office [report](#) published in February 2013 cites a 782% increase in the number of reported security breaches of federal agencies between 2006 and 2012 and they are not alone. Addressing the risk of cyber security in the new digital landscape is critical as failure to do so presents potentially unmanageable risks to our global economy and personal lives. For more about cyber security read our March briefing [here](#).

Look Out For...

The exploding mobile market: A [GSMA](#) report reveals that mobile subscribers are growing 4 times faster than the global population. 3.2 billion of the 7 billion people in the world benefit from having a mobile phone and an estimated 700 million are expected to be added to that number in 2017 which is about 80% of the global adult population. Emerging markets will be the main driver of growth over the next five years. Add to that the mobile ecosystem is forecast to contribute US\$10.5 trillion to global GDP from 2013-2017. The explosive growth of the mobile telephony market has the potential to open up huge global market growth opportunities so forward-looking mobile strategies will be critical.

The e-tail revolution: In 2011 China's e-commerce sales went through the roof reaching US\$120 billion and surpassing online sales in Japan (US\$107 billion), the United Kingdom (US\$56 billion), and Germany (US\$32). China posted the highest e-tail compound annual growth rate in the world at 120% from 2003-2011, with Japan second with annual growth of 27% (2005-2011). Consumption in China is definitely exploding and its retail sector is amongst the most wired in the world. It is expected to overtake the U.S. as the largest e-commerce market in 2013 having the potential to reach US\$650 billion by 2020. (Source: [McKinsey Global Institute](#)). Time to define an e-strategy for the exploding e-consumer market in China.

Digitizing Rwanda: ICT technologies are reaching every corner of earth, including resource-poor Rwanda. The country aims to transform its agrarian economy into a knowledge-based economy by 2020 using ICT. The country has invested in education, made partnerships with foreign universities, and is expanding its ICT environment by installing fibre-optic cables. Services such as E-Soko, a mobile service that allows farmers to check market prices for their products, have already improved the daily life of many Rwandans. With these new technologies, Rwanda hopes to capitalize on its central location in Africa to act as a hub for banking, financial and outsourcing services. (Source: [WEF, Global Information Technology Report 2013](#))

How to win in the new digital economy?

The digital revolution means industries are being challenged, disrupted and transformed as new technological advances become more ingrained into society. In order to compete in a digitized and global world many, if not all, industries will experience far-reaching changes in the years to come. According to recent report from [PWC](#) sweeping changes over the next five years will be seen in

especially IT and technology (72%); telecommunications (66%); entertainment, media and publishing (65%); retail (48%); banking (47%) and life sciences (38%). In these industries as well as others it is all about winning the right to own the consumer. It might not be easy but it is possible and below you will find examples of companies who have managed to navigate in this new digital landscape.

Disrupting and crossing industry boundaries

Innovation is becoming more and more distributed. Industry-level innovation is no longer the province of traditional players – the notions of value and industry are being shaken up more often than not by players from outside the industry or small start-ups with radical ideas and/or technologies, who even more radically focus on needs and customers/consumers rather than on industry boundaries.

Examples of disruptive business ideas created around the mobile:

- [Sensordrone](#) is a little tricorder-like device about the size of a flash drive that is jam-packed with sensors. It can talk to your smartphone via Bluetooth, enabling literally hundreds of previously impossible apps. The company was successfully funded on [Kickstarter](#) (that by the way is quite disruptive itself!) in July 2012. (Source: [Fast Company](#))
- [Boku](#) is a mobile billing system eliminating the need for debit and credit cards in online purchases by billing directly to mobile phone numbers. It is leveraging the telecom infrastructure to disrupt the credit card industry. (Source: [CNBC](#))
- [Snapchat](#) is a smartphone app created by two former Stanford students that offers photo flashing: the opportunity to send a photo or video to someone and have it “self-destruct” within seconds. By rendering digital photos fleeting rather than archival it offers a face-saving alternative to our constantly tracked, inerasable lives on the Internet. Users are now sharing over 100 million snaps daily. (Source: [Forbes](#))

Changing the mindset of what an organization does:

- [Ford](#) is developing the [Sync](#) technology for the Ford automobile-to-user interface. The technology is designed to seamlessly integrate the personalized apps and settings already in a user’s smartphone with the vehicle’s media interface. (Source: [PSFK](#))
- [BMW’s](#) i3 all-electric city car is made of weight-saving carbon-fiber and wrapped in layers of electronic services and smartphone apps designed to make life simpler and save time. Searching for a parking space? The i3 will help you find one at your destination – as well as arrange to rent out your space at home while you are gone. (Source: [CNN Money](#))
- In 2010 [Nike](#), a manufacturer of sports equipment, started producing software complementary to its own products as it created the digital division – [Nike digital sport](#), launching its innovative product Nike Fuelband.

Understanding the power of access and not ownership –the collaborative consumption movement

Collaborative consumption is exploding and creating new industries. It is born out of the digital age as people, particularly the younger generations, question the value of having possessions such as cars, bikes, books, music and even dogs. Today, technologies are available to let them share, rent or barter easily from anywhere, and urban living means that there is a critical mass of people to participate, so ownership is simply not necessary. Nor is it desirable for many as concerns over the environment and global issues prompt a rethink of consumption itself. The question is not simply, do we need to own it, it is do we need it at all?

Building trust between strangers – sharing is becoming big business:

- [Airbnb](#), founded in 2008, is an online service that provides a platform for individuals referred to as “hosts”, generally private people, to rent unoccupied living space and other short-term lodging to guests. As of May 2013, it covered 34,183 cities and 192 countries.
- [Getaround](#), a peer-to-peer car-sharing app that allows car owners to rent their cars to other using a smart-phone app.
- [BorrowMyDoggy](#) connects people who want to spend time with a dog but can’t have one of their own, with people who have a dog that could benefit from more walks, connections and “tail wags.” Is UK-based.

Renting to meet our needs

- [TaskRabbit](#) is an online and mobile marketplace that allows users to outsource small jobs and tasks to others in their neighborhood. Users name the task they need done and the price they are willing to pay, and a network of pre-approved TaskRabbits bid to complete the job.
- [Chegg](#) specializes in online textbook rentals (in both physical and digital formats), homework help, and scholarships through [Zinch](#). It is meant to help students in college. Founded in 2005.
- [Rent the Runway](#) rents high-end designer apparel and accessories on a 4- or 8-day basis. Founded by two Harvard Business School graduates and launched in 2009. The website now offers over 25,000 dresses and accessories from over 175 luxury designers.

If you want to know more about collaborative consumption click [here](#) for an inspirational TEDtalk by Rachel Botsman.

In July/August: Look out for trends in action on the rise of distributed consumption and production!