HARNESSING CLOUD TECHNOLOGY
How multinationals are using the cloud to reinvent business models

A report by The Economist Intelligence Unit

Commissioned by HSBC
Contents

Introduction 2

Chapter 1: The early adopters 3

Chapter 2: How cloud technology will shape multinational corporations in the coming years 7

Conclusion 9
Cloud technology has entered a new phase; light years away from the staid, clunky back-office functionality of ten years ago, this new phase of cloud technology is transforming entire business sectors and forging new revenue streams from previously inconceivable avenues.

Although there are plenty of agile, ambitious start-ups set on using cloud technology to disrupt and innovate business models, multinationals can also be found at the bleeding edge of cloud-based business innovation. If these multinationals succeed, expect seismic shifts across both the public and private sectors, reverberating across all areas of industry.

Furthermore, research from Harvard Business Review shows a correlation between a more mature use of cloud and a variety of new business activities. Cloud leaders—that is, companies that take a more managed, enterprise approach—are “significantly more likely to have launched new products and expanded into new markets than companies that take a more ad-hoc approach”.1

Video rental and streaming company Netflix, for example, transitioned away from an online subscription-based, postal DVD rental service to launch its cloud-based film-streaming service. It currently has 62m subscribers in over 50 countries2, with cloud-based entertainment streaming accounting for 89% of the business’s revenue of US$1.6bn in the first quarter of 2015, up from 84% a year earlier and 76% in the first quarter of 20133. Not only has Netflix gained access to new revenue streams across multiple jurisdictions, but it is also disrupting traditional content-creation business models in the entertainment industry by commissioning its own content, for example by distributing global hit shows House of Cards and Orange is the New Black.

Cloud-based innovation is not just the preserve of the entertainment sector, or even just consumer-facing businesses. Pearson, a UK-based media conglomerate, has launched cloud-based educational curricula that can provide a “data feedback loop” on student progress and which introduce a potential new revenue stream in cloud-based professional development for teachers.

This report will first explore the types and variety of opportunities offered by cloud technologies. In this context, the report will examine the case study of the Pearson System of Courses, illustrating how a multinational is forging new revenue streams by putting cloud technology at the centre of new business ventures. The report will then extrapolate from these “early adopters” to consider how cloud technology is likely to affect multinationals’ business models and revenue streams in the near future.

---

2 Netflix, Company Profile, http://ir.netflix.com/
3 Netflix, Q1 15 Financials Statements (April 15th 2015). Available at: http://ir.netflix.com/
Despite its “fluffy” moniker, cloud computing simply refers to data stored on a physical server that can be accessed through an Internet connection—from anywhere, at any time, using any Internet-connected device.

Faster Internet speeds, fixed and mobile, have increased the delivery of cloud-based services through high-quality, reliable content delivery (including multimedia) and near real-time updating of cloud-based data. Cloud applications have facilitated the delivery of a vast range of services through Internet-connected devices, from streaming services such as Netflix, Google Play, Amazon Prime and Spotify through to real-time international game play using Sony PlayStation or multinationals accessing cloud-based client relationship management software, such as Salesforce.

Reimagining ownership: products as a service

Brian David Johnson, a futurist at a multinational technology company, Intel, says: “Technology has radically redefined what ownership means for businesses because cloud technology is now supported by the Internet infrastructure. This means that not only can you store and move all that data, but you also have the computational power to do things with that data.” He explains that “it is the computational power that allows us to, say, watch TV in the cloud, play games in the cloud and begin to have more enterprise ambition in the cloud.”

Just as US-based Apple revolutionised the concept of music ownership and distribution with the launch of its iTunes music store in 2003, so now is cloud technology contributing to a cultural shift in how people interpret the meaning of ownership, according to Mr Johnson. This provides far-reaching opportunities for multinationals to deliver services to anyone with an Internet-connected device.

Apple’s iTunes was (and is) a software-based online shop that first introduced selling single songs via electronic file downloads, rather than as physical products (such as vinyl, cassettes and compact discs). By 2006, within three years of launching, Apple had sold 1bn songs; within five years it had sold 5bn; and after expanding into selling TV shows, films and apps, in 2014 Apple’s CEO, Tim Cook, said that iTunes software and services were the fastest-growing part of the business. Mr Johnson explains: “Apple was able to create a business model and strike the business deals that radically redefine what the ownership of a song is—and that’s not from a consumer standpoint but from a business standpoint.”

Cloud and the “sharing economy”

Digital innovation, coupled with consumer demands for more flexible yet personalised products and services, has carved a new economic era: the so-called sharing economy. Facilitated by cloud technology, the sharing economy allows people to share property, resources, time and skills across online platforms. This enables “micro-entrepreneurs” to unlock previously unused or underused assets—such as renting a spare room to holidaymakers via Airbnb or allowing access to expensive assets

---


only when consumers want them; for example, renting expensive items such as cars, tools, or luxury watches and bags through peer-to-peer lending schemes. This means that the business-to-business (B2B) and business-to-consumer (B2C) markets are accepting (and increasingly demanding) products delivered as a service.

Paul Smith, senior vice-president and general manager for EMEA at Salesforce Marketing Cloud, says that it is at the intersection of the “sharing economy” and the “convenience economy” that multinationals can find significant opportunities for new revenue streams. Using the example of the Dollar Shave Club6, which operates a subscription business model for replacement razors, Mr Smith explains that “there are many similar products that could very easily become a service...[which is] a lot more transformative in the way we’ve done things, from being product-ownership-driven into being more service-driven”.

Mr Smith says that this shift, powered by cloud technology, means that multinationals that had previously considered themselves B2B could grow new B2C revenue streams by delivering products as a service, particularly where convenience is a factor. Any products that a consumer has to remind themselves to purchase are primed, Mr Smith explains, for a subscription service enabling the producer to post the product directly to the consumer. The latter benefits from the ease of service, while the company gains from higher customer-retention rates and brand loyalty, as well as less dependence on an intermediary sales channel (such as a high-street shop).

Data-driven personalised journeys at scale

Echoing Mr Johnson’s view, that increased computational power helps cloud technology to transform multinational businesses, Mr Smith believes that multinationals now have the power to collect and use both internal customer data and an increasing volume and variety of external data (such as website behaviour, tracking of Internet Protocol addresses and social data). These data can be shared in real time across geographies and time zones to enhance customer service and improve sales and marketing functions.

In retail, this can mean that rule-based automation prevents inappropriate marketing messages from reaching a specific customer who may be complaining to customer service about a faulty product. In entertainment, it can facilitate cross-selling opportunities; the European division of Sony Computer Entertainment (SCE), a Japanese multinational, uses Salesforce Marketing Cloud to personalise and target real-time SMS and email notifications based on in-game play on their PlayStation connected devices. Mr Smith says that SCE matches these data with targeted and personalised sales content delivered through SMS or email. The result has been a marked increase in the company’s engagement rate on its outbound marketing communications and its conversion rates on targeted calls to action.

Regional variations

Multinationals using cloud computing to process and share internal and external data to create personalised journeys at scale must consider regional technological preferences and consumer behaviour. In developed markets such as Europe, the variations are less country-specific and more about the concentration of industries in certain countries and markets that are innovating using cloud technology, Mr Smith explains; examples include Unilever in the UK7, food and beverage company Nestlé in Switzerland8 and technology company Philips in the Netherlands9.

In Asia, Singapore is at the forefront of incorporating cloud technology into its ambition to become a “smart nation”. Singapore has one of the highest smartphone penetration rates in the world (see chart below). However, this is only the beginning. A government agency, the InfoComm Development Authority (IDA), has the

---

6 Dollar Shave Club, http://www.dollarshaveclub.com/
8 “Nestlé Collaborating with Salesforce.com to drive digital transformation”, PAC blog, May 27th 2013. Available at: https://www.pac-online.com/nestl%C3%A9-collaborating-salesforcecom-drive-digital-transformation
9 “Salesforce helps Philips stay light years ahead of the competition”, Salesforce. Available at: http://www.salesforce.com/uk/customers/stories/philips.jsp
task of transforming Singapore into a country of complete connectivity. Part of this ambition is an enabling environment for cloud technology. A key focus for IDA is “developing capabilities in local Software-as-a-Service companies, to enhance their market competitiveness and consumer focus”.

New initiatives in cloud and data analytics include a Data-as-a-Service pilot. As at late April 2015, 21 companies from various industries were participating in the pilot.

Africa, meanwhile, has been described as not only a “mobile-first” continent but a “mobile-only” continent, with mobile phones as common in South Africa and Nigeria as in the US. However, with significantly constrained smartphone penetration, multinationals’ cloud-supported, data-driven omnichannel business campaigns must be sensitive to the bias towards SMS in this region. Mr Smith says that, as smartphone costs fall, multinationals operating in African countries, as well as in the Middle East, are increasingly seeing success from GPS-based push notifications to smartphone devices, in effect “leapfrogging” desktop computing and email.

Such regional variations in technology culture mean that, while Europe and North America are evolving “mobile-first” business and marketing strategies, multinationals are becoming far more innovative in the use of cloud and mobile technology in Africa and the Middle East, says Mr Smith. He singles out consumer-goods company Unilever and beverage firm SABMiller as strong examples in this regard.

---

**Chart 1**

**Smartphone penetration rate**

(% of total population)

<table>
<thead>
<tr>
<th>Country</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>UAE</td>
<td>73.8%</td>
</tr>
<tr>
<td>South Korea</td>
<td>73.0%</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>72.8%</td>
</tr>
<tr>
<td>Singapore</td>
<td>71.7%</td>
</tr>
<tr>
<td>Norway</td>
<td>67.5%</td>
</tr>
<tr>
<td>Australia</td>
<td>64.6%</td>
</tr>
<tr>
<td>Sweden</td>
<td>63.0%</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>62.8%</td>
</tr>
<tr>
<td>UK</td>
<td>62.2%</td>
</tr>
<tr>
<td>Denmark</td>
<td>59.0%</td>
</tr>
</tbody>
</table>

Source: Google, *Our Mobile Planet.*

---

10 “Smart Nation: Singapore’s vision to connect ‘everyone to everything, everywhere, all the time’”, International Business Times, May 15th 2015. Available at: http://www.ibtimes.co.uk/smart-nation-singapores-vision-connect-everyone-everything-everywhere-all-time-1500005


Case study: Pearson System of Courses

Pearson is the world’s largest book publisher and the market leader for textbooks. Thematically, the business is transitioning from selling printed material to selling education services; since 2013 Pearson’s online content and software revenue has surpassed that of its traditional printed products, generating 60% of the company’s revenue. In its 2014 results, Pearson said that it was “taking advantage of our new cloud-based, mobile-ready and data-analytics capabilities”.15

Pearson has sounded its commitment to cloud-based interactive learning; in 2014 it launched REVEL for US university students and the Pearson System of Courses (PSOC) for American kindergarten students—both are cloud-based, multimedia immersive programmes designed to replace textbook-based learning with digital content delivered through mobile devices.

For the PSOC, Pearson partnered with US-based Microsoft, using its Azure Cloud Services to process interactions with users that amounted to tens of millions of events in the PSOC’s first four-month period.16 Most PSOC users have selected a hybrid cloud solution. The PSOC’s kindergarten students also share use of tablet devices.

The integral “people component”

Michael Chai, senior vice-president of schoolproduct technology at Pearson, says that an “important component” of cloud-based education provision is the power of “large-scale data feedback loops” to improve the quality and personalisation of education. Teachers have different access to the courses, including an analytical component; a teacher can monitor group and individual student activity in real time, as well as analyse recorded and stored data about student performance, individually or as a class.

Mr Chai explains: “The success of cloud technology—in other sectors as much as in education—is dependent on the people component and the capital component. Delivering reliable, effective technology to the classroom is a key enabler for improving the efficacy of the entire system. We have had enquiries globally for quite some time, so we do believe there is underlying market demand for this approach and, I would say, we’re seeing a convergence happening at the global level around connecting teachers and students in this digital world.”

From a business perspective, the data collected and stored on the cloud provide Pearson with useful insights about patterns of learning behaviour and about the most effective teaching methods. It can be used at micro level—PSOC analytics can provide granular insights selected by classroom and time or day, for example—or (in theory) at macro level, where schools could benchmark themselves against competing institutions nationally or even internationally.

Mr Chai says that PSOC data can be paired with third-party statistics, such as socioeconomic status or children in a school or region, and thus be used to benchmark schools’ performance against national norms.

Acknowledging the cultural squeamishness around data treatment and application, Mr Chai says “data privacy and security are extremely important topics and at Pearson we take these matters very seriously; at a larger level the education industry may find positive lessons in how the healthcare industry is handling an analogous transition to digital.” He adds that, although Internet infrastructure poses a short-term challenge to cloud-based business opportunities, the biggest longer-term challenge is around data privacy and data-treatment laws.

Although the PSOC was initially launched in the US—benchmarked against the country’s Common Core State Standards—the course content can be customised to respond to the rigorous requirements of different countries’ education curricula, without changing the functionality and product structure. This should generate growing revenue across different geographies, the scope for expanding from English and Maths subjects, and additional revenue streams from professional-development modules available to teachers. Mr Chai adds: “Not only can a cloud-enabled solution lead to a subscription model, it also includes a services component that we consider critical to implementation success.”

---


How cloud technology will shape multinational corporations in the coming years

Looking at the outlook for cloud technology and its impact on multinationals, three key trends are likely to stand out: 1) the growing market opportunities arising from computational power; 2) the rise in corporate partnerships; and 3) the opportunities provided by collaboration between five generations.

The smart, connected computational power of everything

Mr Johnson points out that “the next step in cloud tech is to understand we are beginning to see computational power approach zero, which means we will be able to turn anything into a computer”—our homes, our cities, our offices. This can already be seen with the influx of wearable technology, the Internet of Things and “smart” Internet-connected cities such as Singapore, Stockholm and Seoul.

The market opportunity for multinationals is significant. A business-intelligence provider, IDTechEx, forecasts that the market for wearable technology will grow from US$20bn in 2015 to US$70bn by 2025. Similarly, an information-technology research and advisory company, Gartner, predicts that 4.9bn items will be connected to the Internet during 2015, increasing to 25bn items by 2020. Cloud technology is instrumental in “joining up the dots” of real-time data flow between these devices.

The rise in corporate partnerships

Partnerships between multinationals, as well as between multinationals and competitive new entrants, is nothing new. What cloud technology is changing are the types and nature of those relationships. Pearson, for example, is nurturing a consultative relationship with customers, which influenced its decision to partner with Internet infrastructure corporations.

The “Internet of Everything” is brokering non-traditional, cross-sector partnerships and collaborations, too, as consumers expect a higher level of product and service interconnectedness and compatibility. Data access and sharing will continue to be a thorny issue for multinationals, as data-sharing among partners fuels data-privacy concerns.

Cloud-based apps are also introducing multinationals to new revenue streams (and

Table 1: Internet of Things units installed base by category

<table>
<thead>
<tr>
<th>(million)</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automotive</td>
<td>96</td>
<td>189.6</td>
<td>372.3</td>
<td>3,511.1</td>
</tr>
<tr>
<td>Consumer</td>
<td>1,842.1</td>
<td>2,244.5</td>
<td>2,874.9</td>
<td>13,172.5</td>
</tr>
<tr>
<td>Generic Business</td>
<td>395.2</td>
<td>479.4</td>
<td>623.9</td>
<td>5,158.6</td>
</tr>
<tr>
<td>Vertical Business</td>
<td>698.7</td>
<td>836.5</td>
<td>1,009.4</td>
<td>3,164.4</td>
</tr>
<tr>
<td>Grand Total</td>
<td>3,032</td>
<td>3,750</td>
<td>4,880.6</td>
<td>25,006.6</td>
</tr>
</tbody>
</table>

Source: Gartner


potential disruptors), such as peer-to-peer lending and crowd-sourcing/crowd-funding. An online money-management tool, Geezeo, which uses mobile and cloud technology to help people to manage their household finances, supplies its Personal Financial Management tool as an overlay to US-listed Regions Bank, which offers this mobile option alongside its e-banking and traditional services.

The 5G workforce
For the first time in history, five generations are working together: the traditional generation (born pre-1945); the Baby Boomers (1946-64); Generation X (1965-80); Generation Y, also known as Millennials (1981-95); and the “Linkster” generation (born after 1995). The latter two are considered “digital natives”, having grown up using computers and are comfortable with sharing personal data in the Internet-connected environment. Intel’s Mr Johnson says that this will create “incredible business innovation”.

He adds: “The post-Millennials—a generation that has never known a time before the Internet, global connectivity and the cloud—set the bar for the new generation to do incredible business innovations. I think what keeps [multinationals] safe, what keeps us profitable, what keeps the engine of global commerce going are these five generations working together, with the newest generation a very powerful addition to the global workforce.” Multinationals will need to juggle meeting the needs of the digital natives—“all that innovation coming through the [multinationals’] door”—while supporting Baby Boomers who have “this incredible bedrock of knowledge”.

Global demographic changes, Mr Johnson predicts, will fuel corporate innovation “because all those people will have computational power in their pockets or on their wrists, and the ability to connect to a massive amount of computational power in the cloud”, which provides multinationals with a vast distribution network, as well as powerful knowledge-sharing.

Conclusion

Successful businesses are never fully formed; businesses that thrive are constantly shaped by the business and cultural environments around them. The Information Age has heralded new tools, skills, revenue streams and expectations, while making others obsolete. Cloud technology is part of that digital evolution. Its new phase—as a harbinger of new distribution channels for delivering products as a service, for faster and more “live” information flows between corporations and their customers—is demanding that multinationals think bigger, and think differently.

As computational power moves towards zero, making it easier to add an increasing array of physical objects to the Internet and to process large volumes of data from multiple sources, multinationals are ideally positioned to take advantage of the nimbleness and “joined-up thinking” facilitated by cloud technology. Speed is the new currency; with cloud-based applications facilitating crossborder, real-time collaboration, reducing duplication and streamlining business processes, the potential for major time savings when taking a new product or concept to market is enormous. When multinationals can adopt a quick-to-market test and iterate “lean” methodology to new products and services, the risk from similarly nimble start-ups that have less financial clout, fewer staff, lower brand penetration and higher barriers to international markets diminishes considerably. Klaus Schwab, founder and executive chairman of the World Economic Forum, puts it this way: “In the new world, it is not the big fish which eats the small fish, it’s the fast fish which eats the slow fish”20.

Today, multinationals are being challenged to reimagine ownership to consider which of their products could be delivered as a service. Multinationals must commit to exploring what that intersection between the “sharing economy” and the “convenience economy” means for their business model(s). This requires a cultural and mental shift from both multinational leaders and each of their stakeholder groups, challenging every preconceived notion that they have about people, products, processes and place.

Although cloud adoption by businesses and individuals has matured considerably in the past five-to-ten years, challenges remain. In the cultural sphere, there is some discomfort around data and privacy issues. There are concerns around security and the threat of cybercrime. And challenges remain regarding reliable and uniformed connectivity infrastructure. Nonetheless, these challenges also offer opportunities for innovation. The digital juggernaut means that the potential for harnessing cloud technology to reinvent business models will continue to grow.

20 “Are you ready for the technological revolution?”, World Economic Forum, February 19th 2015. Available at: https://agenda.weforum.org/2015/02/are-you-ready-for-the-technological-revolution/
Harnessing cloud technology: How multinationals are using the cloud to reinvent business models

Cloud technology is a top-ten strategic trend that will have a significant impact on organisations during the next three years. According to David Cearley, vice-president and Gartner Fellow at Gartner Research, “cloud is the new style of elastically scalable, self-service computing, and both internal applications and external applications will be built on this new style.”

But unlike for start-ups, business agility can be a challenge for multinationals, which are often encumbered by large legacy systems and product lines, and typically have large workforces spanning multiple geographies. In addition, many multinationals operate in the glare of the spotlight, with shareholders, board members and the media interrogating their strategy and research and development spending, along with potential regulatory complexities.

Against this backdrop, how do multinationals navigate their behemoth businesses towards cloud-based business models, systems and revenue streams? Here are three essential considerations:

1) Invest in self-disrupting technology

Invest in technology, even when it disrupts existing product lines and business systems. John Chambers, CEO of a multinational technology company, Cisco, says that: “A whole series of shifts have occurred in the kinds of technology companies rely on... All of them required companies to make big investments in technology. Those that didn’t were, once again, left behind. For Cisco, each transition required a decision about when to jump from selling a profitable product to a new technology—often one that would cannibalise our existing product line. These jumps were critical, though, if we wanted to stay ahead of the curve.”

2) Innovate for, and leverage, existing customers

Multinationals have significant advantage in their existing brand power and customer base. The latest phase in cloud technology is its swift rise and pervasiveness. Helping a customer base navigate the “new digital world” paves the way for innovative cloud-facilitated services, as well as potentially opening a new revenue stream in itself. Consumer (B2B and B2C) expectations are fast changing, and the data deluge—if analysed correctly—can provide tailored insights into a multinational’s customer base, replacing redundant traditional “demographic” ideas.

3) Encourage technological maturity in all roles

Pearson’s Mr Chai says that a solid foundation of technological proficiency from staff, a technology-embracing internal business culture, and robust infrastructure and policies to support daily use are essential groundwork for multinationals to harness the cloud. He explains: “If you want to make change happen, by necessity it means changing the everyday paradigm—in our case that means teachers, in healthcare it means physicians. Then you need to facilitate leadership readiness from inside the business but also from institutional stakeholders—so, for us, the superintendent role, the head-teacher role, the teacher role, the parent role and the student role all have to work together towards this.”

Learning points for multinationals

While every effort has been taken to verify the accuracy of this information, The Economist Intelligence Unit Ltd. and HSBC Bank Plc cannot accept any responsibility or liability for reliance by any person on this report or any of the information, opinions or conclusions set out in this report.
LONDON
20 Cabot Square
London
E14 4QW
United Kingdom
Tel: (44.20) 7576 8000
Fax: (44.20) 7576 8500
E-mail: london@eiu.com

NEW YORK
750 Third Avenue
5th Floor
New York, NY 10017
United States
Tel: (1.212) 554 0600
Fax: (1.212) 586 1181/2
E-mail: newyork@eiu.com

HONG KONG
1301 Cityplaza Four
12 Taikoo Wan Road
Taikoo Shing
Hong Kong
Tel: (852) 2585 3888
Fax: (852) 2802 7638
E-mail: hongkong@eiu.com

GENEVA
Rue de l’Athénée 32
1206 Geneva
Switzerland
Tel: (41) 22 566 2470
Fax: (41) 22 346 93 47
E-mail: geneva@eiu.com