

## The global mHealth market opportunity and sustainable reimbursement models

### Highlights

- PwC and GSMA predicts that global mHealth revenues will increase to \$23 billion over the next four years
- The market opportunity for mHealth is promising, yet conflicting financial incentives has created uncertainty on how stakeholders can capitalise
- Reimbursement models are largely dependent on patient involvement and a gradual evolution of medical models that help familiarise providers and payers to new modes of care delivery

Mobile health (mHealth) is an attractive solution that leverages the ubiquity of mobile devices to address the prevalent problem of access to healthcare and rising costs. According to the International Telecommunications Union, overall mobile penetration rates will have reached 96% globally by 2013, 128% in the developed world and 89% in the developing world.<sup>1</sup> The growing rates of mobile adoption, coupled with the pressing challenge of finding alternative ways to reduce healthcare costs, provide a ripe opportunity to expand the mHealth market.

In fact, a PwC and GSMA study predicts that global mHealth revenues will increase by nearly six-fold to \$23 billion by 2017.<sup>2</sup> Most of the market share will be in Europe and the Asia-Pacific regions with 30% of share each, followed by North America with 28%. Latin America and Africa are expected to have smaller markets with estimated shares of 7% and 5% respectively.<sup>3</sup>

mHealth has the potential to revolutionise the healthcare industry yet organisations are still uncertain how to capitalise on the technology. To make gains, healthcare organisations, payers, mobile operators and regulators should work together as part of an ecosystem to introduce consumer-centric, scalable business models that empower the patient and provide reimbursement for mHealth offerings.

### Key mobile market opportunities

According to the PwC and GSMA report, *Touching lives through mobile health: Assessment of the global market opportunity*, monitoring services and applications are expected to represent 65% of the market in 2017, driven primarily by the rapidly ageing population in developed countries and the high levels of chronic disease in emerging markets.<sup>4</sup>



<sup>1</sup> International Telecommunications Union, *The World in 2013: ICT Facts and Figures* report, <http://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2013.pdf>

<sup>2</sup> PwC and GSMA, *Touching lives through mobile health: Assessment of the global market opportunity*, February 2012.

<sup>3</sup> Ibid.

<sup>4</sup> Ibid.

Chronic disease management and post acute care monitoring services will comprise a large proportion of the opportunity with nearly US\$10.7 billion in revenue in 2017, with a majority of revenues contributed by the former. Independent ageing solutions also offer a large opportunity with potential revenue of US\$4.3 billion in 2017.

Key opportunities in chronic disease management will also vary across countries dependent on the prevalence of various diseases. For instance, monitoring of patients with metabolic conditions such as obesity and diabetes is expected to comprise about 39% of revenues in chronic disease management in the US. This is followed by approximately 23% in Germany, 20% in Brazil, and 12% and 10% in Japan and China respectively. Similarly, monitoring patients with cardiovascular conditions such as hypertension, coronary artery disease and congestive heart failure is expected to contribute about 47% to chronic disease management revenues in the US and about 79% in China.

Diagnostic services are expected to comprise nearly 15% of the mHealth market with US\$3.4 billion in revenues in 2017. The adoption of diagnostic services is expected to support developing markets in bridging their healthcare access challenges. The services covered under this category include simple interactive messages that help patients self-diagnose minor ailments, medical call centres manned by healthcare professionals, and telemedicine solutions that enable doctors to 'see' patients through wireless broadband. A majority of the revenues from diagnostic services are expected to come from call-centre and mobile telemedicine solutions with approximately US\$ 1.7 billion and US\$ 1.6 billion in revenue in 2017.

Treatment will be the third largest revenue opportunity with around 10% of the total mHealth market share. Wellness and prevention will comprise approximately 3% and 1% respectively of the total mHealth market.

### **Mobile operators benefit the most from mHealth**

The PwC and GSMA report also predicts that mobile operators are expected to be the key beneficiaries of the expected growth in the mHealth market and command about 50% share of the overall market, corresponding to US\$ 11.5 billion, in 2017. This is closely followed by device vendors (29%), content/application players (11%) and healthcare

providers (10%).<sup>5</sup> This is mainly due to the high share of revenue mobile operators receive from monitoring services as they are increasingly acting as system integrators to bring total remote patient monitoring systems to the market. In the diagnostic market, existing healthcare providers will garner most of the revenues.

When broken down by regions, the key drivers such as healthcare access, mobile penetration, rural-urban divide, disease profiles, dependant population and income levels vary across countries at both inter-regional and intra-regional levels. Consequently, the adoption rates and pricing of various mHealth services and applications are expected to vary across regions. For instance, monitoring services represent a greater percentage of mHealth revenues in countries with higher income levels whereas diagnostic services are the main beneficiaries in countries with lower income levels (which typically have low physician and hospital densities).

Thus, it is evident that mHealth is likely to be a large value creation opportunity for multiple stakeholders – mobile operators, device vendors, content and application players and healthcare providers – across the world. The huge market opportunity for mHealth makes a strong case for promoting its adoption yet conflicting financial incentives among providers, payers and patients has created some uncertainty on how they can capitalise on the opportunity.

### **It's more than money**

Too often, there is an expectation that technology will conjure new business models, benefiting patients, payers and providers in the healthcare ecosystem. Reimbursement becomes the focus, where some argue that if clinicians are paid for exercising mobile technologies then mHealth will become a more prevalent phenomenon. Though very important, payment is only one of many barriers to overcome in the adoption of mHealth. Merely paying doctors to adopt mHealth doesn't address all the other barriers.

More than money, it's a matter of culture, timing, process and sequencing. As we look at the adoption of any new disruptive innovation, we see that there is a long lag between its introduction and resulting transformation. This is because workflows and

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<sup>5</sup> Ibid.

practices must be transformed to enable the revolutionary outcomes resulting from the technological innovation. Today's clinicians and providers will not readily embrace a new painful and difficult change that forces them to alter the way they service patients and earn a living.

In essence, doctors want a simple and elegant solution for mHealth and remote monitoring that is as easy as writing a drug prescription. This would mean writing the prescription and having the deployment, installation, maintenance, management, call-centre follow-up, customer service and refurbishment done by someone else. US healthcare behavioural science and technology company WellDoc provides this type of approach for its diabetes application, which is approved by the Food and Drug Administration (FDA). Since the app is FDA-approved, doctors can write a prescription for its use and be reimbursed by payers, thus supporting current practices.<sup>6</sup> Therefore, for mHealth to have greater traction with the medical community, business models must emerge within the confines of existing reimbursement schemes and evolve gradually.

### Medical models will emerge over time

To first gain the support of providers, mHealth companies should introduce solutions that simply facilitate the flow of patients, thus increasing profit, without offering any clinical or administrative changes. For example, some applications aggregate all the doctors in a given area allowing patients to easily locate a nearby physician and make appointments in real-time. The seamless flow of patients can help supplement revenue without requiring any other changes to their practice. As doctors become more comfortable with mobile technologies, these companies can then increase the scope of their solutions to include administrative functions that will improve payment processes and workflows. These types of innovations can yield cost savings and revenues enhancements.

The next stage of the business model evolution is expanding the solution to include applications that provide clinical services for specific conditions,

Figure 1: Medical models evolve as providers and payers gradually become familiar with mHealth solutions for everyday tasks



which are not being addressed by traditional applications. Revenue is generated by filling a gap that is not being currently satisfied by traditional vendors. For example, some companies specialise in preventative medicine by offering digital tools that integrate genetics, metabolic and traditional medicine for a personalised diet and exercise regimen.

As the new mHealth solutions scope expands, payers will become more engaged and willing to reimburse for new and existing services once they see how mHealth can reduce spending on administrative burdens and provide the best treatment within a restricted budget. Since payers want quantifiable outcomes that are tied to the value they receive, a key part of the power of mobile is its ability to capture patient and consumer data and outcomes. Payers — along with pharmaceutical and medical technology companies — can harness mobile sensors, devices and smartphones to capture information that will be critical to future value-based payment.

### Reimbursement strategies are dependent on patient appetite

Payer and providers are only part of the equation, however. Patients are increasingly becoming the primary arbiter in determining what is valuable and should be paid for. For example, in emerging countries, patients generally pay for all or most of their healthcare costs and services. Therefore if mHealth provides more affordable healthcare with better access and quality consumers are eager to pay

<sup>6</sup> Economist Intelligence Unit, *Emerging mHealth: Paths for growth*, June 2012.

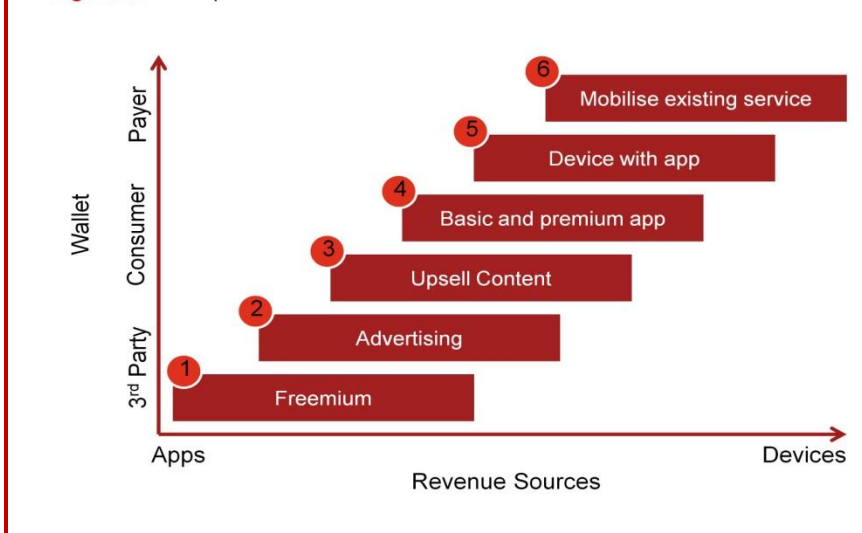
for this value. For this reason we have seen many examples of rapid adoption of solutions in these markets that have gone wanting in developed markets. The more developed the healthcare market is, with governments or employers as the primary payer, the less we see consumers driving the adoption of novel solutions. Adoption of mHealth is slower since consumers in these markets have good healthcare they feel they do not have to pay for directly.

The challenge is convincing the consumer and patient that the mHealth solution provides better outcomes, treatment and value than they would typically receive from traditional services. Consumers may consider paying a premium if they were to save time and effort in realising their healthcare objectives. In a basic model, mHealth operators and developers can implement a scheme allowing patients/consumers to try the technology for free and then charge a premium once patients recognize the value of the product. This can include offering a 'basic' or 'premium' application, where patients can receive basic services for free but must pay for the 'premium' package or subscriptions if they want enhanced solutions.

Another payment model companies may consider is charging modest prices (US\$50- US\$200) for the medical device but offering the app for free. The irony here is that most of the user experience, satisfaction and value comes from the app, as opposed to the device, but consumers have been more willing to pay for the device than the app. But while apps can help increase customer adoption and utility, mobility models in other industries indicate that consumers still have a limited threshold in paying for mHealth. According to a PwC-commissioned report, patients cite cost is the biggest barrier to greater use of mHealth (49%), not because products are expensive but because patients are highly price sensitive.<sup>7</sup>

Therefore, models that will get the most traction will be based on payment schemes that leverage other business partners to subsidise any additional costs outside of consumer payments, similar to how other industries e.g., retail, travel, media, provide value-add services usually free of charge. For example, this could be in the form of advertisements or 'upselling' content on behalf of a third-party, an idea that has

Figure 2: Examples of mHealth reimbursement models



yet to be effectively applied to healthcare and wellness.

While detractors claim that lucrative mHealth models don't exist, the reality is that — like any nascent technology — it will take time for business schemes to evolve. Initially we see that individuals become fixated on novel technology as if it alone will change the world. Like any disruptive innovation, the status quo must be given the opportunity to experiment within the confines of existing business models before they can develop new approaches that disrupt the current market. A good precedent to this phenomenon is the financial services industry in creating the automated teller machine (ATM), which overcame challenges related to information technology, competition, privacy and security. Recognising the common need to address changing customer habits, financial institutions overcame their differences and formed partnerships creating an ecosystem that is interconnected through a comprehensive, global interoperable ATM infrastructure.

mHealth will evolve in a similar manner. The growing trend to change reimbursement from fee-for-service to those based on outcomes will increase the demand for accessible, affordable, and effective care. Though there are barriers to be overcome, they are not insurmountable. mHealth is poised to take advantage of new business models that will arise from the growing demand for more cost effective alternatives to traditional health schemes.

<sup>7</sup> Economist Intelligence Unit, *Emerging mHealth: Paths for growth*, June 2012.

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