



mHealth

South Africa mHealth Landscape

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Overview

The mobile phone holds the power of ubiquity. Across the developing world, around 40% of people now actively subscribe to mobile services. If we include people who do not own but have access to a phone the connected population is pushed to over 50%. This is in contrast to traditional core services such as banking, electricity and sanitation which are near universal in developed regions such as Europe and the United States, but well below 50% in several developing regions.

The confluence of mobile and traditional service delivery underpins the opportunity held by Mobile for Development, which seeks to draw investment and partnership to scale mobile-enabled services that can help facilitate service delivery in the absence of traditional modes of infrastructure. Indeed, Mobile for Development is a growing sector, with well over 1,000 live services now being tracked by the GSMA across the developing world in verticals such as money, health, education and entrepreneurship. The problem is that while the sector has enjoyed continued growth in the number of services over the last 5-7 years, scale and sustainability have generally not been achieved.

mHealth in emerging markets, including South Africa, is one of the most active mobile verticals. Unfortunately it also lacks the sustainable impact data that drives strategic integration into health systems. Fragmentation, an inability to monetize and/or create sustainable financing structures through robust public private partnerships are just two of the hurdles faced by industry stakeholders.

This work has been developed by the GSMA mHealth programme to help address these challenges in South Africa and funded by the UK Government for the benefit of developing countries. The views expressed are not necessarily those of UK Government.

Source: GSMA-Mobile for Development Intelligence (MDI). www.mobiledvelopmentintelligence.com

About us

The **GSMA** represents the interests of mobile operators worldwide. Spanning more than 220 countries, the GSMA unites nearly 800 of the world's mobile operators with more than 230 companies in the broader mobile ecosystem, including handset makers, software companies, equipment providers and Internet companies, as well as organisations in industry sectors such as financial services, healthcare, media, transport and utilities. The GSMA also produces industry-leading events such as the **Mobile World Congress** and **Mobile Asia Expo**.

GSMA Mobile for Development (M4D) brings together our mobile operator members, the wider mobile industry and the development community to drive commercial mobile services for underserved people in emerging markets. We identify opportunities for social, economic and environmental impact and stimulate the development of scalable, life-enhancing mobile services.

GSMA mHealth Programme brings together the mobile industry and health stakeholders to improve health outcomes in emerging markets, with initial focus on Millennium Development Goals 4, 5 and 6 across Africa. The Pan-African mHealth Initiative is an integral part of the programme, which includes research through various tools to inform the creation of business models, implementation support for services, and facilitation of partnership opportunities among governments and development partners.

For more information, visit www.gsma.com/mhealth

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What you need to know

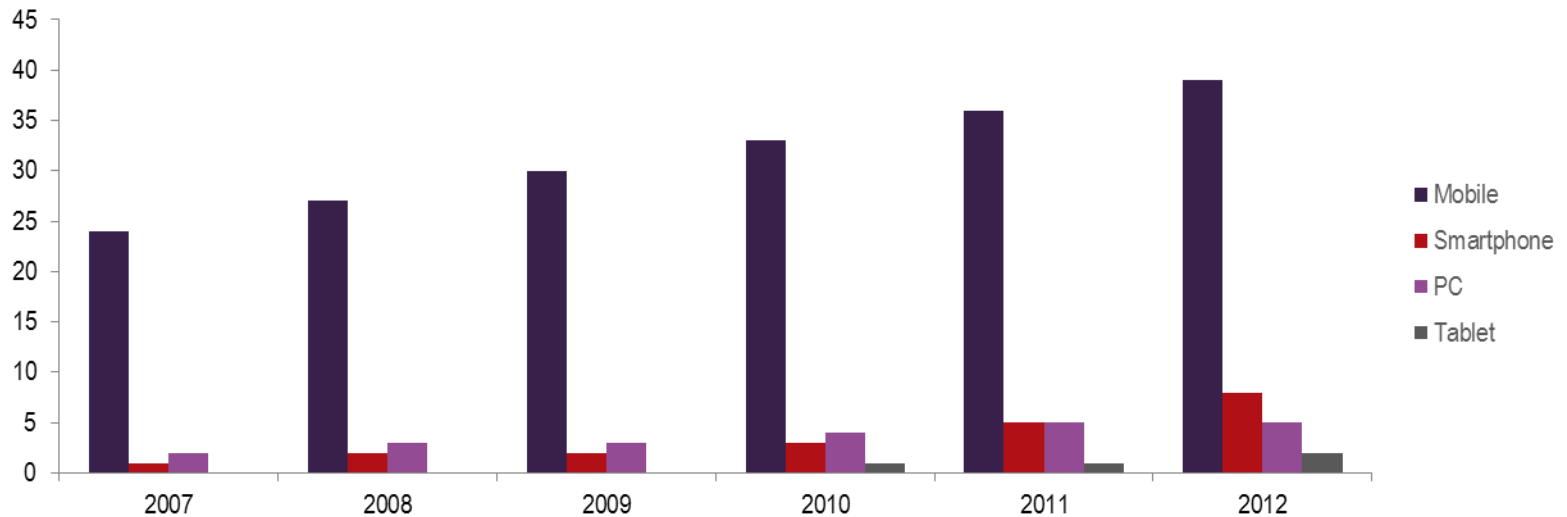
Key findings	Key implications
<p>Mobile around the world: the closest to ubiquity: nearly 40% of people in the developing world now subscribe to mobile services, with subscribers having grown at over 10% a year since 2007. Taking into account people who have access to a mobile, despite not owning one, would push the connected population to well over 50%.</p>	<p>Harness the scale: while growth in the number of people using a mobile will moderate over the next 5 years, we still expect 130 million new mobile services subscribers <i>every year</i> to 2017. This means an increasing total addressable mobile for development market, uniquely positioned to use the mobile as an alternative to traditional modes of service delivery.</p>
<p>Network coverage is key: despite the rise in penetration, there is still a wide gap in coverage between urban and rural areas, with mobile penetration in urban areas up to double that of the rural population.</p>	<p>Bridging the coverage gap is multi pronged: to bridge the gap will require both further network roll-out and alternative solutions, such as by using green power for rural base stations. There is also a role for GSMA in lobbying for benign regulatory environments, and community power, which can be used both to aid mobile connectivity and access to utilities such as water and electricity.</p>
<p>South Africa: despite income divide mobile is still utility: smartphones have grown to the point where we estimate 12% of people own one in South Africa, compared to virtually no take-up in 2007. This is dominated by low cost Android devices, which have steadily declined in price to below \$100. We expect growth to continue over the next 5 years, but mainly for mid and higher income segments.</p>	<p>Feature phones and smartphones blur: it is increasingly important to consider the convergence in price and functionality between higher end feature phones and lower end smartphones. M4D service providers should be aware that as smartphone penetration rises, while this opens a more personalised experience, it carries trade-offs, such as lower build quality and battery life.</p>

Source: GSMA-MDI

Mobile around the world: the closest to ubiquity

- On an ownership basis, the mobile phone is the most widely owned communication device in the developing world
- The PC is owned by a much smaller share of people, with tablets smaller still
- Access to a PC will be greater than ownership given device sharing, but the same is true of mobile, so the gap is unlikely to change

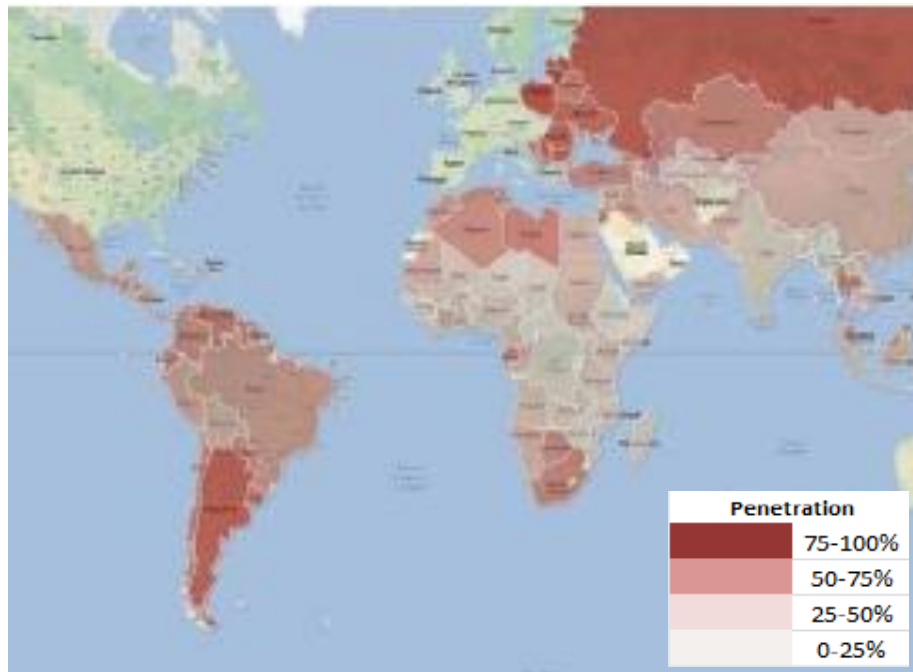
Penetration of population (developing world)



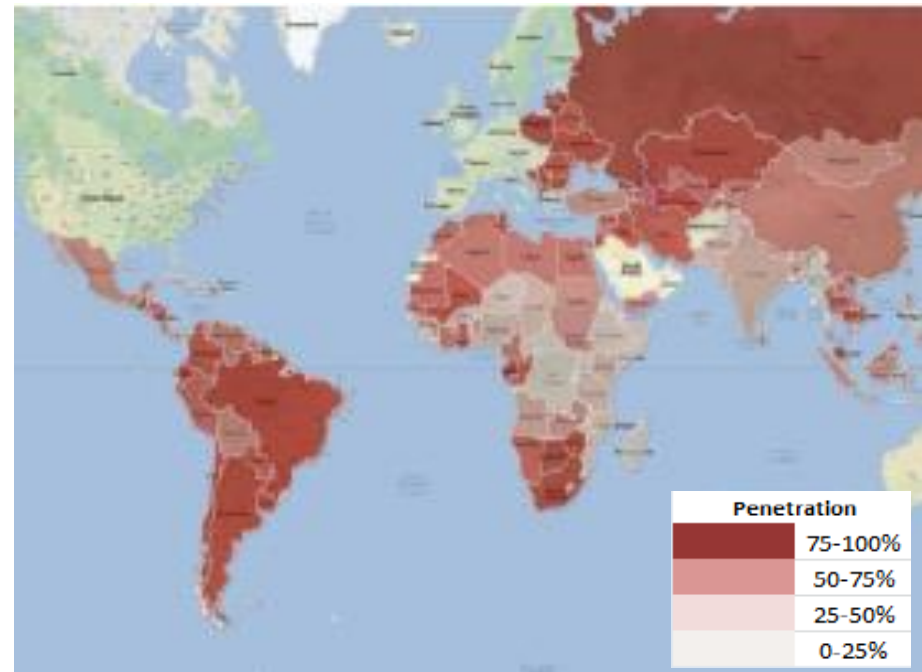
Note: mobile is proportion of people that subscribe to mobile services
 Source: GSMA-MDI estimates based on GSMA Wireless Intelligence, Strategy Analytics, Telegeography

Mobile around the world: Rise in the penetration in developing world

2007



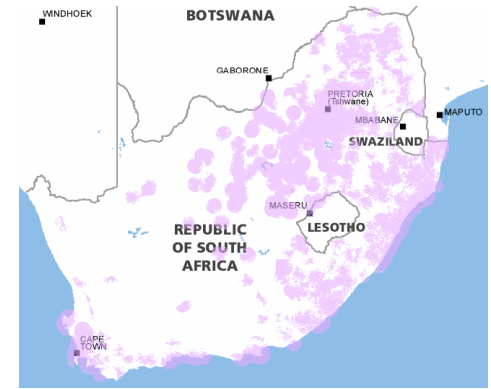
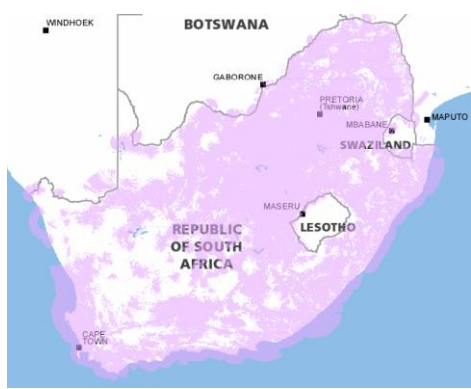
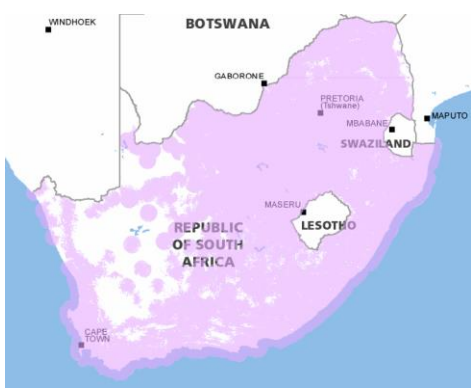
2017



Note: penetration is of active mobile subscribers (e.g. those who subscribe to mobile services)
 Source: GSMA Wireless Intelligence, GSMA-MDI Analysis, Google Fusion

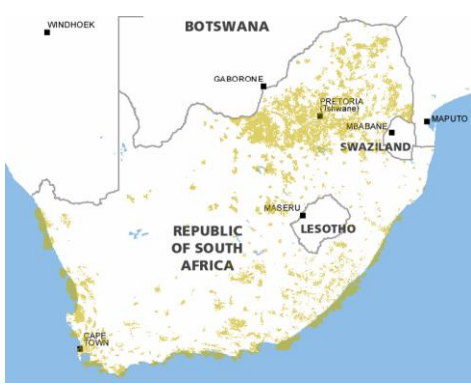
The 3 major networks between them cover 90% of South Africa, but 3G roll-out remains limited to urban areas

2G

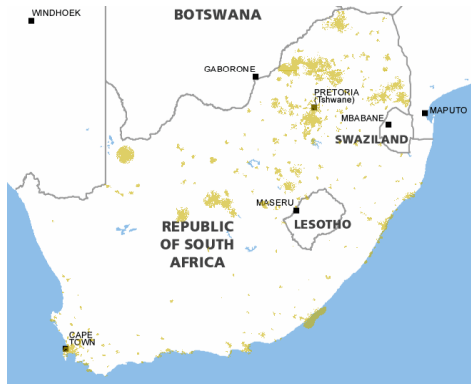


Vodacom

3G



MTN



Cell-C



Source: GSMA MDI

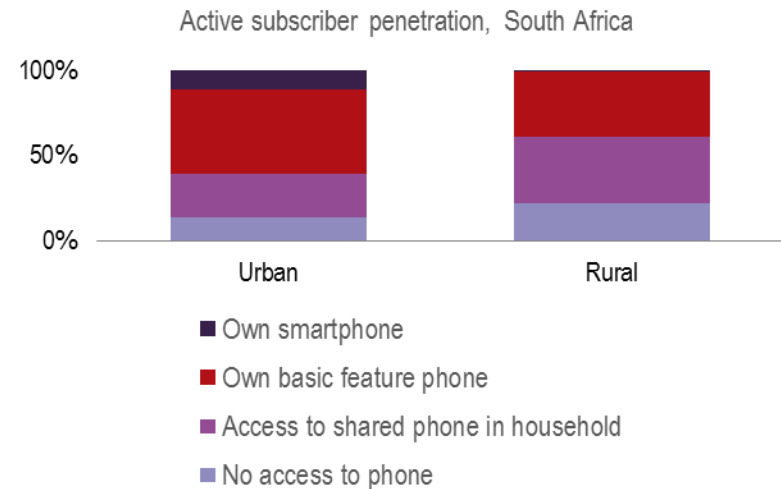
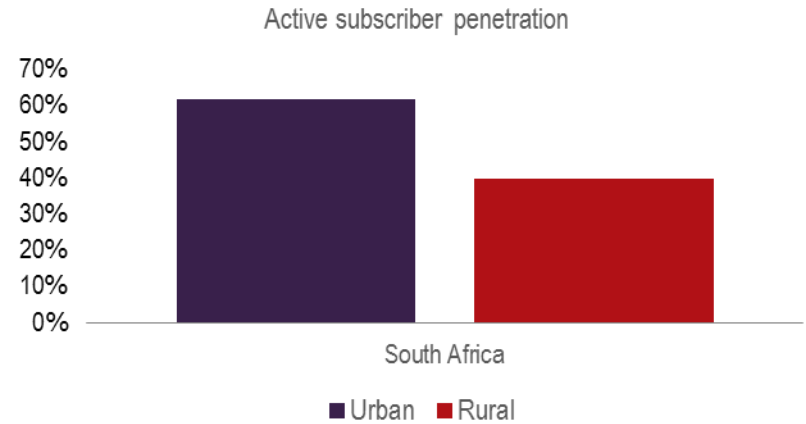
South Africa: Shared access reduces the effect of rural/urban divide

Large difference in penetration rate between urban and rural areas can be explained by:

- Cost of network roll out
- Return on investment to mobile operator

Shared access brings several implications:

- Augments the M4D reachable audience
- Latent demand for mobile ownership
- Design of M4D services (personalised nature)
- This form of access likely to continue in rural markets in particular



Source: AMPS, GSMA-MDI Analysis

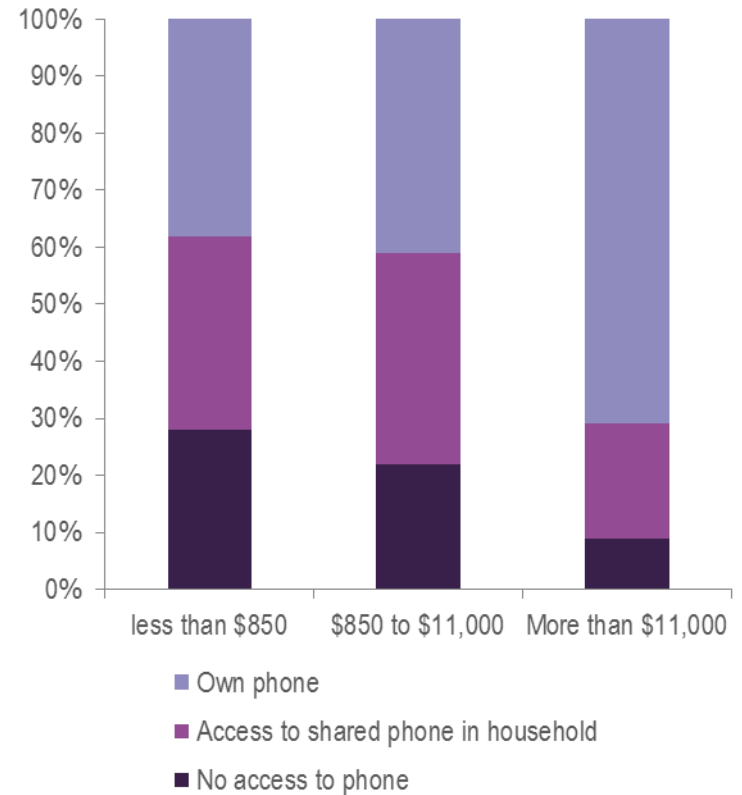
South Africa: despite income divide mobile is still a utility

Little difference in penetration between incomes of below \$850/year up to \$11,000 year (\$2-\$30/day)



Implies mobile is seen more as utility than luxury, even for those with little disposable income.

Mobile ownership within different income groups



Source: GSMA Wireless Intelligence, AMPS, GSMA-MDI Analysis

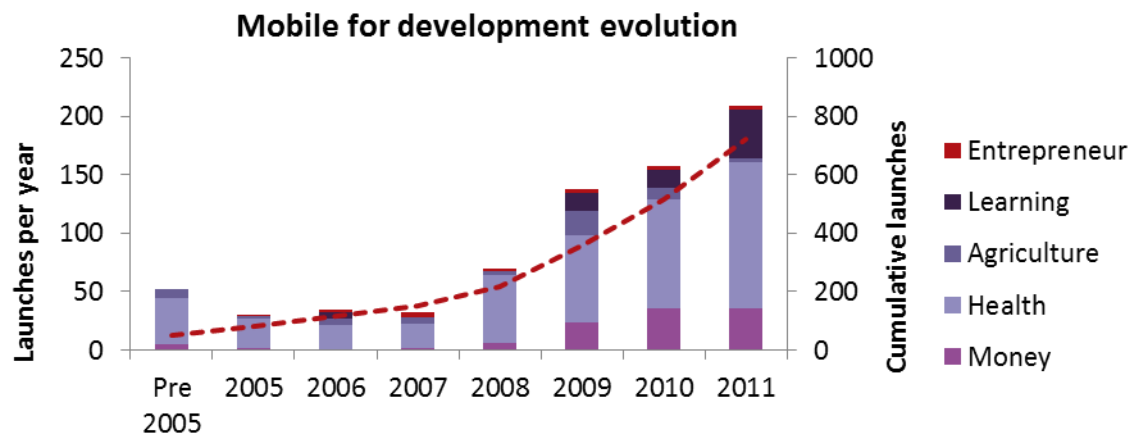
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What you need to know

Key findings	Key implications
<p>M4D is growing: there are now over 1000 live mobile-enabled products and services in the developing world, with growth having accelerated over the last 3 years.</p>	<p>The need for scale: while the number of M4D services continues to rise, there remains a general lack of scale achieved (with some exceptions, such as in the mobile money sector). The drive for impact must be balanced by the need for scale.</p>
<p>Health dominates mobile for development: while the number of mHealth services is much higher than any other mobile verticals it is important to consider the scale of each sector.</p>	<p>Importance of creating sustainable commercial solutions rather than yet another service: high number of small services have contributed to Pilotitis in the developing world. In Uganda this led to a moratorium on mHealth and a more regulated approach to development of new mHealth services.</p>

Number of Mobile for Development services has increased almost five times between 2007 and 2011

- Strong growth in the number of Mobile for Development services launched over the last 3 years
- It is crucial to consider scale of each sector, not just the number of services or projects
- Similar trend can be seen in South Africa

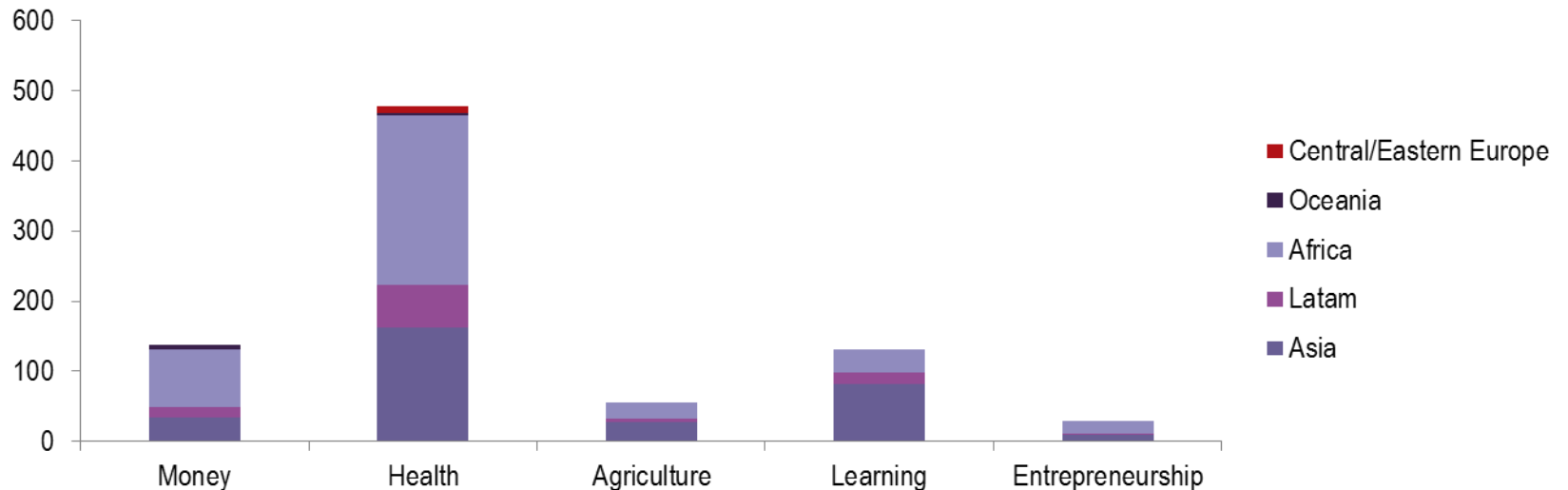


Note: figures based only on mobile-enabled products and services in developing world tracked by GSMA (including those merged/closed). As of September 2012. Source: GSMA-MDI Analysis

Health dominates Mobile for Development

- The chart below shows the geographical distribution of live Mobile for Development services in the developing world tracked by the GSMA
- Mobile money has a concentration in Africa, learning and education in Asia, while health and agriculture are more evenly split between these two regions
- Health dominates mobile for development in emerging markets, as also in South Africa

Live deployments



Note: figures based only on mobile-enabled products and services in developing world tracked by GSMA (including those merged/closed). As of September 2012. Source: GSMA-MDI Analysis

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Key findings	Key implications
<p>Scale has not been achieved in >95% of solutions due to the costs of mobile connectivity, fragmentation of services and lack of public reimbursement for mHealth.</p>	<p>Neutral brokers are needed to foster robust public private partnerships and secure long term investment to drive down costs and achieve critical adoption rates.</p>
<p>Barriers to replication in the form of inadequate guidelines for interoperability and lack of compliance with international best practices and standards.</p>	<p>Guidelines for interoperability and adherence to standards need to be put in place.</p>
<p>No shared value proposition: The mobile and health sector lack understanding and appreciation for each other's value drivers and impact indicators.</p>	<p>Importance of the articulation and communication of a shared value proposition.</p>
<p>Lack of consistent indicators and the absence of measurement and evaluation as standard practices restrict growth of the evidence base and with it sufficient public and private investment.</p>	<p>Call to action for standardised impact, outcome and output indicators that track against regional and country disease indicators, and report on overall impact on the health system.</p>

Potential of mHealth

mHealth interventions offer great potential to address health care challenges in emerging markets

mHealth can catalyse:

- Client education and behaviour change communication;
- Sensors and point-of-care diagnostics;
- Registries and vital events tracking;
- Data collection and reporting;
- Electronic health records;
- Human resource management;
- Supply chain management;
- Financial transactions and incentives;
- Electronic decision support – information, protocols, algorithms, checklists;
- Provider-to-provider communication;
- Provider training and education; and
- Provider work planning and scheduling.

mHealth in emerging markets

603 mHealth products and services in emerging markets as of June 2013



Source: GSMA m4d mHealth, GSMA mHealth Tracker

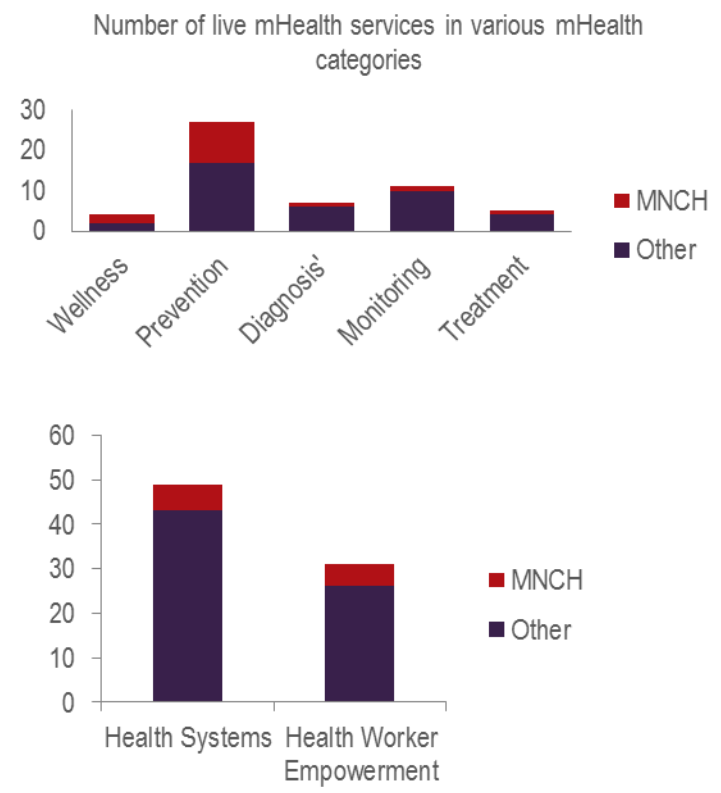
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Key findings	Key implications
<p>Fragmented, nascent industry: 101 services identified in South Africa, many of which are ‘small’ services addressing the same areas (e.g. 42 services addressing HIV/AIDS, 50 services claiming to support health systems in various ways)</p>	<p>Ecosystem development: Closer cooperation is needed to reduce fragmentation and increase success of mHealth.</p>
<p>Unsustainable business models: 75% of all services have received catalytic donor investment. There are few examples of revenue generation beyond catalytic donor investment.</p>	<p>High risk for discontinuation of services: Innovative business models that take into account the constraints of a country’s health system and other specific variables need to be developed in order to reduce the risk.</p>
<p>Scale is a moving target: a handful of services show promising adoption and active user rates. Clearer demonstration is needed to compare addressable target markets with actual user rates.</p>	<p>Replication: Scale should be considered for implications of replication, partnerships development and the ability to manage the growth of services. Scale as a term used to define the target for the number of end-users should be avoided.</p>
<p>Mixed findings on reaching at risk populations: Basic phones dominate devices but access channels target those users with data and web access.</p>	<p>Limited reach to the BOP: Most at risk population groups remain disadvantaged and the actualisation of mobile to increase service access remains limited.</p>
<p>Disproportional distribution throughout the country: Gauteng and Western Cape are 2 Provinces with the most mHealth services opposite of Free State, Limpopo and Eastern Cape.</p>	<p>Replication: Importance of developing strong business case in Gauteng and Western Cape and replicating it to other Provinces.</p>
<p>Regulators not sufficiently engaged: limited scientific (health-economic) evidence base for vast majority of services and inadequate incentives for mobile industry to provide socio-economic services.</p>	<p>Insufficient evaluations and prohibitive price structures limit integration of mobile into the health system</p>

Source: GSMA m4d mHealth, GSMA –MDI

101 mHealth services throughout South Africa of which 83 are live*



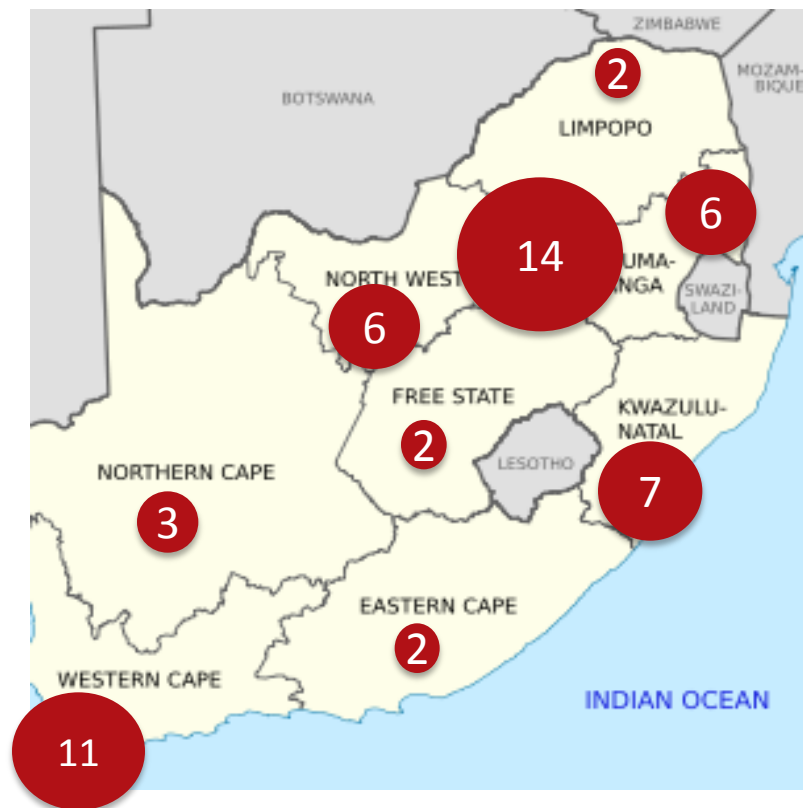
- All of the mHealth categories have at least one service that address Maternal, Newborn and Child Health (MNCH).
- The most addressed medical need is HIV/AIDS with 42 live mHealth services, followed by Tuberculosis, which is addressed by 10 mHealth services.
- Out of 83, only 3 services address diabetes in the country, where roughly 4 million people are living with diabetes.
- Out of 83, only 18 services are led by mobile operators.
- The top 3 organisations in the mHealth space in South Africa, in terms of number of services are Cell-Life (22), Mezzanine (18) and Mobenzi (8). Vodacom is the most engaged mobile operator in the mHealth space in South Africa as a lead and partner organisation (29).

Note: *not all of the planned services are tracked within mHealth Tracker. All the numbers above are as of June 2013.
 Source: GSMA m4d mHealth Analysis, International Diabetes Federation

Distribution of mHealth services across South Africa

43 out of 83 mHealth services are deployed across all 9 Provinces.

- 40 services are deployed on a provincial level in either one or more provinces.
- Gauteng and Western Cape are the two provinces with the most mHealth services due to a strong and innovative Department of Health and entrepreneurial environment, great network coverage, and presence of most mHealth organisations.
- Free State, Eastern Cape and Limpopo have only 2 province specific mHealth services. Consumer research in the upcoming month should address the reason behind this fact.
- 7 MNCH services have no specific province focus. The most targeted province is The Western Cape. A more targeted province focused approach is recommended going forward.



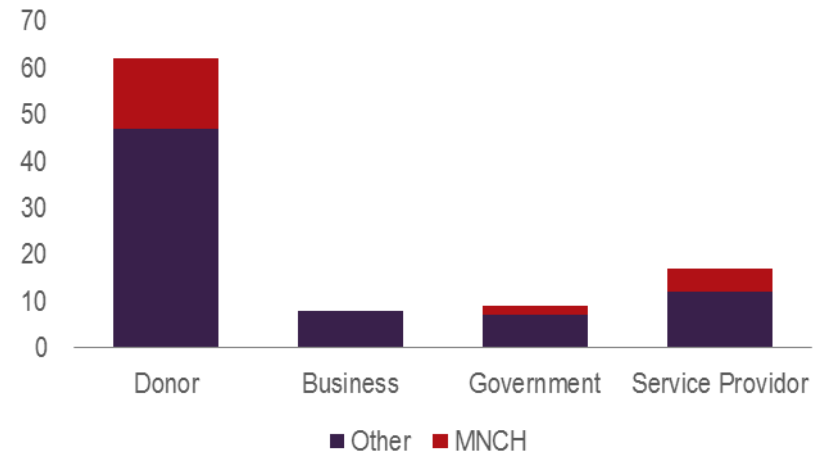
Note: All the numbers above are as of June 2013.
Source: GSMA mHealth Analysis

Initial project funding & revenue generation

62 out of 83 services were initially funded by a donor; 15 were initially solely funded by businesses or service providers, out of which commercial and sustainable solutions were developed.

- Services that target women and children were most frequently funded by donors (15 out of 18) and service providers (5 out of 18).
- Revenue is primarily generated through advertisements (6 out of 15), subscription models (4 out of 15) and pay per transaction (5 out of 15). 68 services didn't share in what way they generate revenue.
- Creating sustainable revenue streams are one of the top priorities of most organisations.
- For commercial reasons, few organisations were not willing to share specific details of sustainable business models.

Initial project funding for mHealth services targeting Women & Children and Various



Organisations need to incorporate sustainable commercial business models beyond donor funding into their strategic plans from the beginning

Basic phones are the most used device while mobi sites and Mxit are the most popular access channels

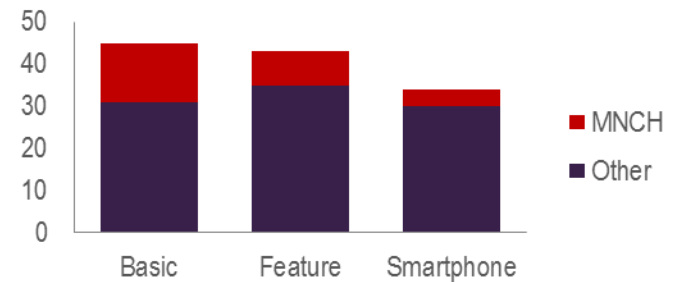
Device used by a specific service

- Services are mostly developed for basic phones. However, the end-user reach of these services is limited.
- In terms of end-user reach feature phones are the most used devices.

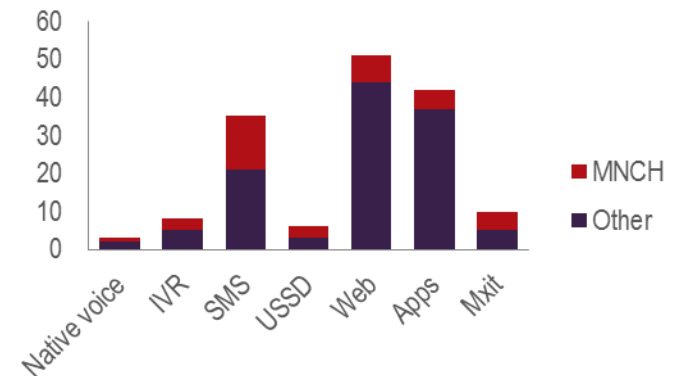
Access channel by a specific service

- Due to high costs and an unproven business case, not many services use IVR & Native Voice as the primary access channel.
- The Mxit platform is used by 10 different services and is the most popular access channel in terms of end-user reach in South Africa, apart from mobi sites.

Device for service use

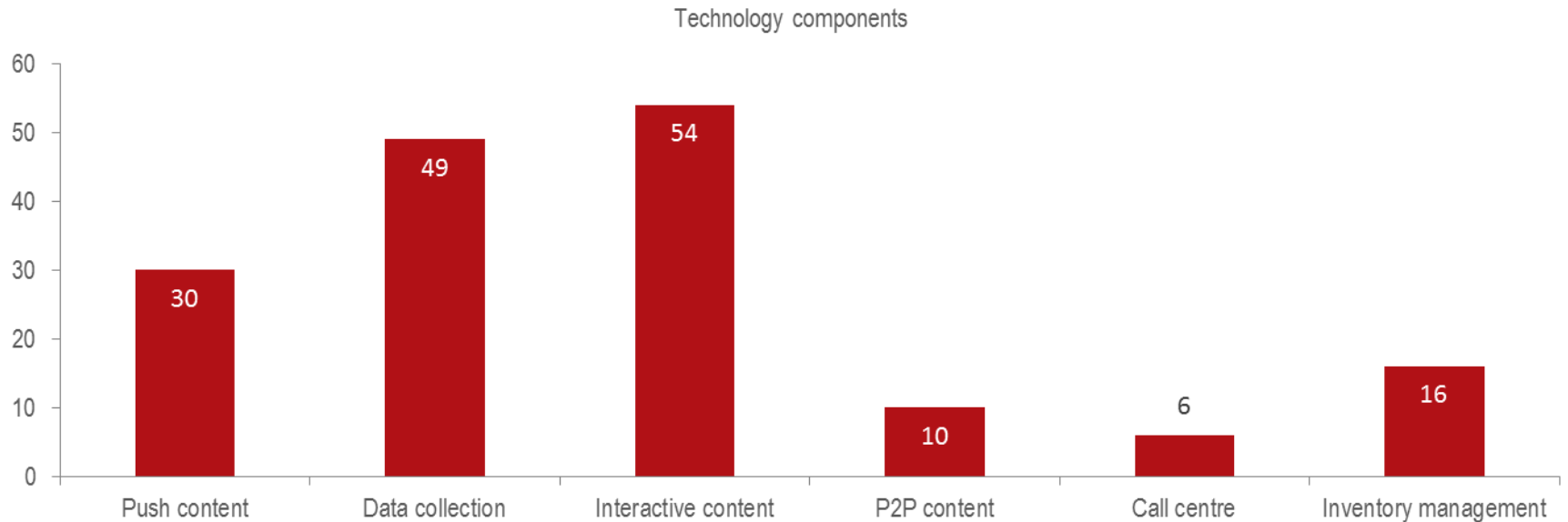


Access Chanel



Note: number of users is based only on data provided by organisations that agreed to externally share information. All the numbers above are as of June 2013. Source: GSMA mHealth Analysis

Data collection and interactive content are the most used technology components



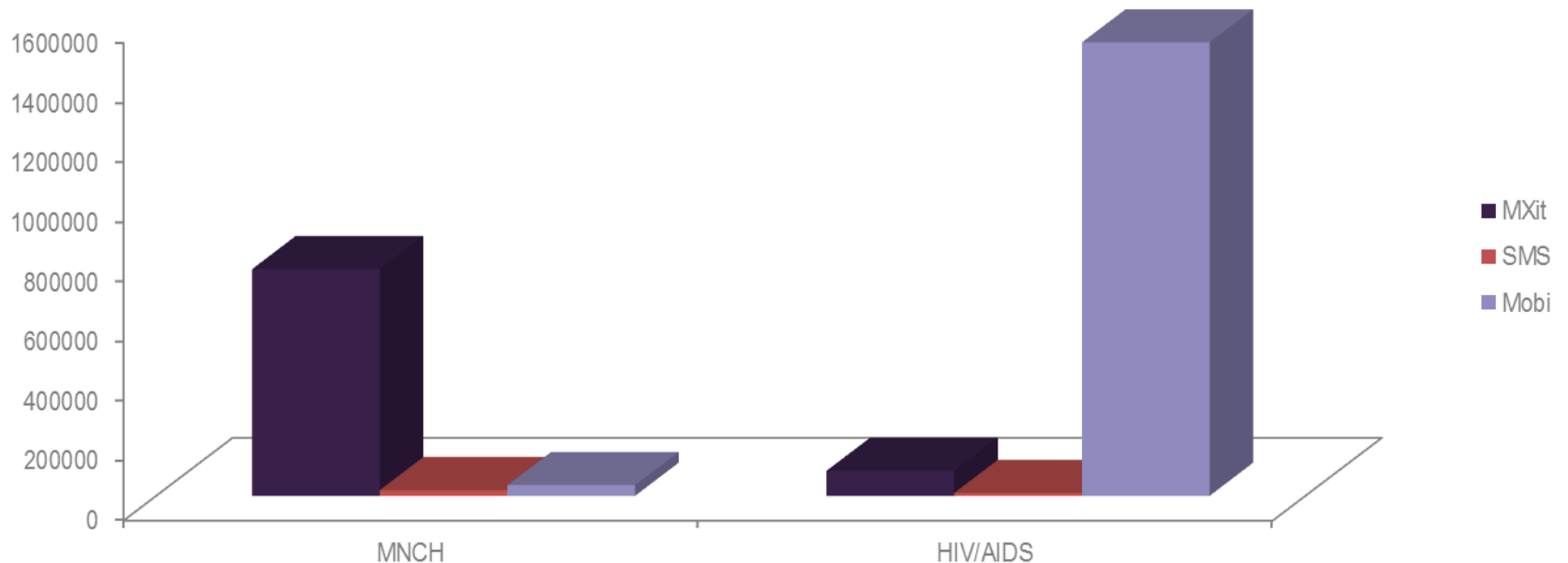
- More than 50% of all mHealth services use an Interactive Content and Data collection solution
- Push content is surprisingly low with less than 30% of services using it as a technology solution. One reason for this are services that are mostly using other means of access that enables interactive content.

Note: All the numbers above are as of June 2013.
Source: GSMA mHealth Analysis

Mobi sites and Mxit are reaching the highest number of users

BabyInfo has over 760K users. Young Africa Live has over 1.5M users.

Number of active users receiving MNCH & HIV/AIDS messages



Note: number of users is based only on data provided by organisations that agreed to externally share information. All the numbers above are as of June 2013. Source: GSMA mHealth Analysis

Evidence base remains weak in mHealth

Formal studies are the exception rather than the rule.

The use of mobile phones as a data collection tool: A report from a household survey in South Africa

Conclusion

‘The benefits of mobile technology, combined with the improvement that mobile phones offer over PDA's in terms of data loss and uploading difficulties, make mobile phones a feasible method of data collection that needs to be further explored.’

Value of a mobile information system to improve quality of care by community health workers

Conclusion

‘Mobile phone-based information system platforms offer significant opportunities to improve CHW-delivered interventions. The extent to which these efficiency gains can be translated into realised health gains for communities is yet to be tested.’

Text messages as a learning tool for midwives

Conclusion

‘This survey demonstrated that text messages via personal cell phones were well received by South African midwives; the information was widely shared with colleagues and was believed to improve learning and patient care. The messages often formed the basis of discussions and student teaching.’

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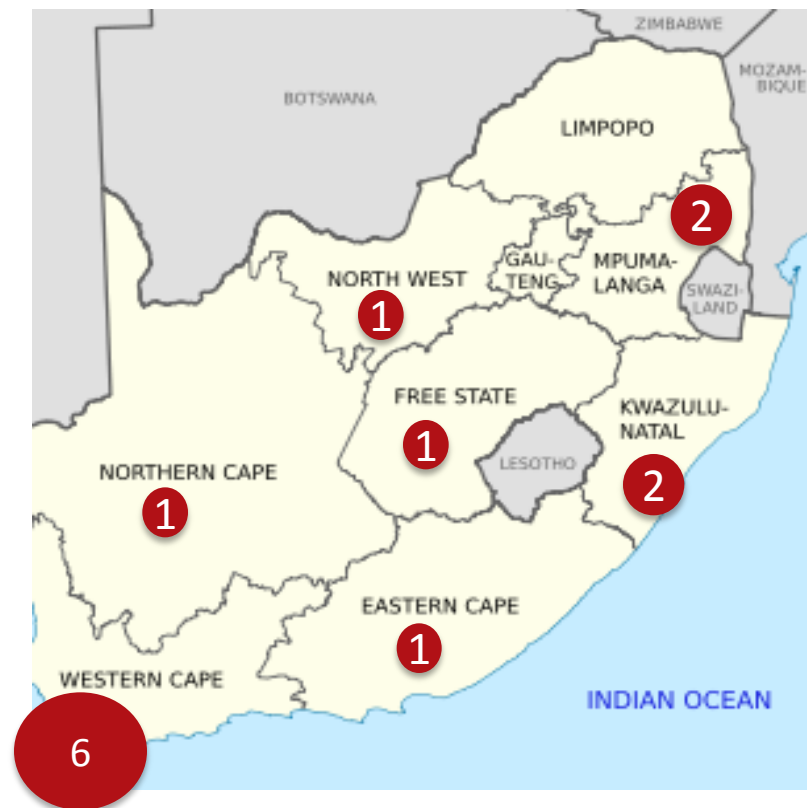
Key findings	Key implications
Maternal messaging is reaching almost 800,000 mothers and expectant mothers. MXit platform is the most used service, reaching over 760,000 mothers and expectant mothers.	Limited reach to low-income segments. To enhance the reach of BOP users, services using other channels need to be promoted more efficiently.
Only one service is addressing the need of health workers with respect to additional education and training. The service is today reaching 3,500 midwives.	Mobiles could be leveraged to enhance training and education for midwife, Community Health Worker (CHW) and Health Worker (HW). Apart from the existing service, Hello Doctor's platform could be leveraged to provide additional education.
Only 3 pilot services currently address the needs of improving health systems.	National Registry could be supported by multiple organisations. National coordination and creation of interoperability standards is needed in order to create national registry.
Overlap in various maternal and child focused mHealth services was identified only in demand generation focused services. There was no overlap identified in health systems strengthening and health worker empowerment services.	National strategy that will incorporate standards and increase interoperability between various solutions is crucial.

Source: GSMA m4d mHealth, GSMA –MDI

Distribution of MNCH mHealth services across South Africa

9 out of 18 MNCH mHealth services are deployed across all 9 provinces.

- 9 services were deployed on provincial level in either one or more provinces.
- Western Cape is the province with the most mHealth services.
- Limpopo and Gauteng do not have *province specific* mHealth services. Consumer research in the upcoming month should address the reason behind this fact.



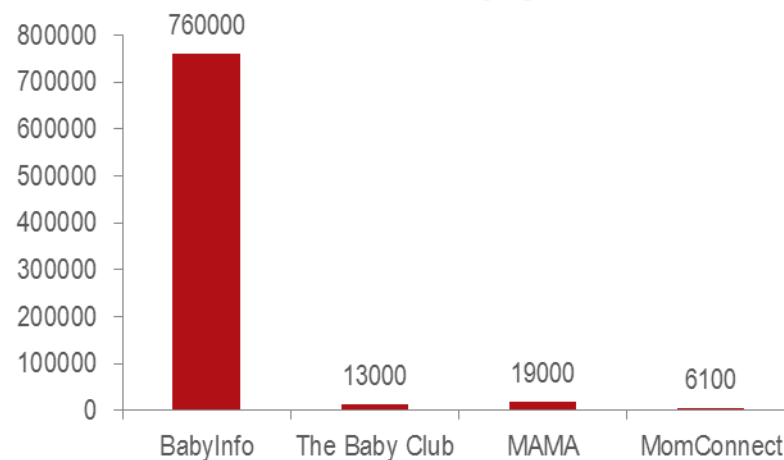
Note: All the numbers above are as of June 2013.
Source: GSMA mHealth Analysis

BabyInfo is reaching 760,000 end users

12 services in demand generation suggest a more coordinated role is needed

- Maternal related messaging is reaching over 800K mothers and expectant mothers through different services and channels (assuming end user is subscribed to only one service).
- MXit platform is the most used service, reaching the highest number of mothers and expectant mothers.

Maternal messaging: Number of users



1. Vital health information to new and expectant mothers is delivered through 4 similar services: BabyInfo, MAMA, small-MAMA and The Baby Club. 2 additional services support women before and through the medical abortion process.
2. MAMAs&PAPAS is the sole service that is meant to target young fathers with information about why involved fathers are important. However the service was never launched.
3. Other: Hi4Life sends health information. iMobiMama sends reminders to increase earlier antenatal booking. MomConnect sends SMS reminders to the expectant mothers with HIV status.

Note: number of users is based only on data provided by organisations that agreed to externally share information. All the numbers above are as of June 2013. Source: GSMA mHealth Analysis

Empowering CHWs and HWs

Continuing education for health care workers could be expanded through mobile solutions

- Electric Book Works within its Bettercare Programme deliver weekly SMS text messages on essential lessons in maternal care. Each SMS includes an important nugget of practical knowledge selected from the Maternal Care course book of the Perinatal Education Programme reflecting evidence-based information in current midwifery practice.
 - The service currently reaches 3,500 midwives.

- Hello Doctor within its Hello Doctor 4 Doctors enables effective connections and conversations between SA's medical professionals.
 - The service currently reaches 1,900 doctors (not MNCH specific).



Note: research based as of June 2013.
Source: GSMA mHealth Analysis

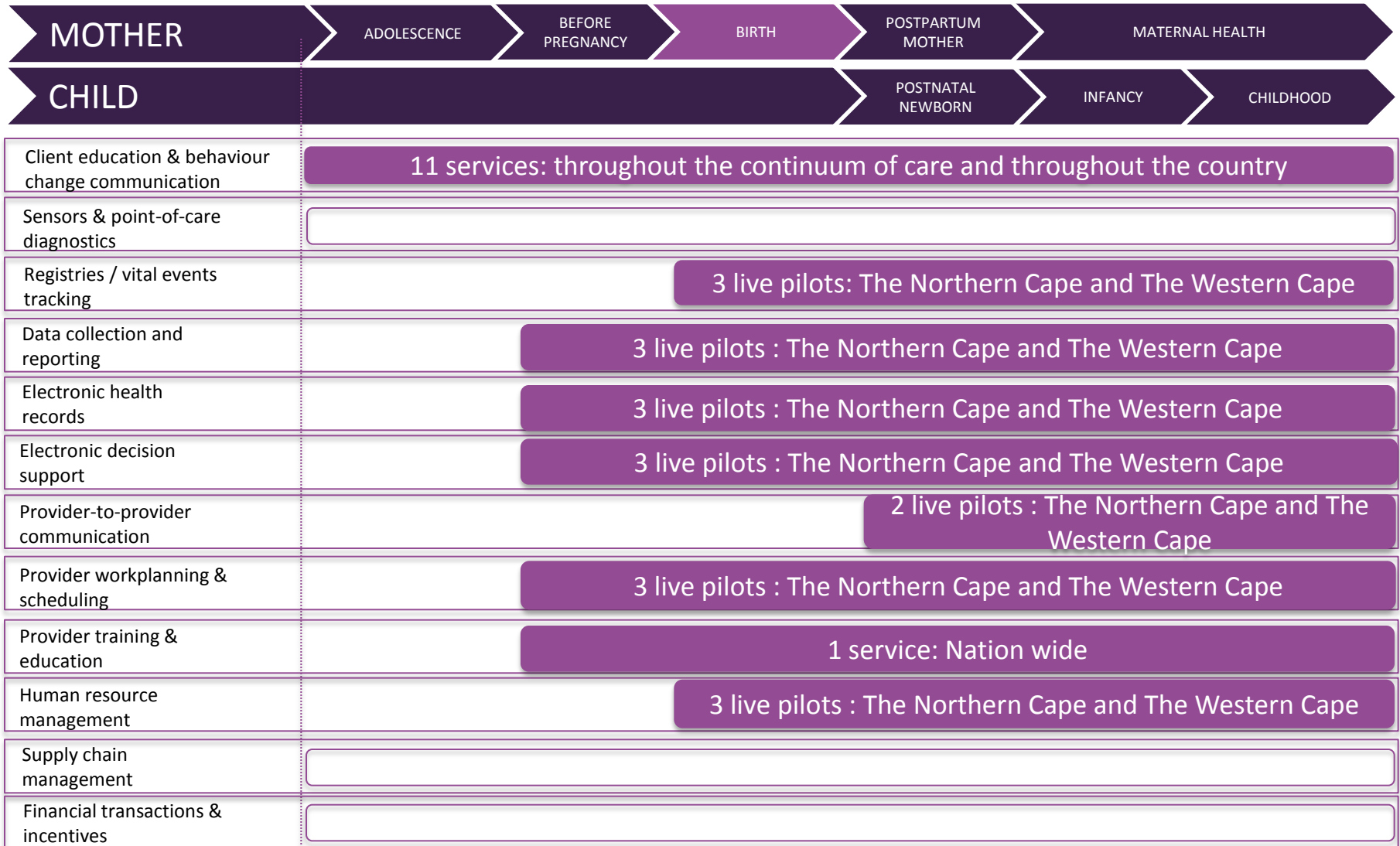
No national MNCH registry

Multiple organisations could support the effort of building National MNCH Registry

- **Mobenzi**, as a partner organisation, is involved in 3 different MNCH targeted services, with over 142 users (CHWs, mentor mothers, etc) in The Northern Cape and The Western Cape. Solutions provided (by WHO categorisation):
 - Provider workplanning & scheduling
 - Human resource management (monitoring)
 - Electronic decision support
 - Registries / vital events tracking
 - Data collection and reporting
 - Electronic health records
 - Provider-to-provider communication (referrals)
- **Cell-Life** is planning to have over 7000 CHWs online within 12months to which they will provide support to collect and disseminate household personal registration data, as well as allow CHWs to communicate with support personnel and each other via SMS and Voice.
- **Mezzanine** provides similar solutions however none of them currently address MNCH.
- **Dimagi** is another organisations that could provide support with its CommCare solution.

Note: we are disclosing number of users only for the organisations that agreed to externally share information. All the numbers above are as of June 2013.
Source: GSMA mHealth Analysis

Various solutions are provided by 3 live pilots ran by Mobenzi



Recommendations for future studies

Impact Pathways and Service Maturity Tool

Impact Pathway:

- Knowledge database of all the formal studies
- Knowledge database of all the informal studies
- Contribution to the creation of Impact Pathways



Service Maturity Tool:

- Framework that can be used for objective evaluation of an mHealth product/service with respect to current maturity as well as guiding the service towards adoption of best practices and maturity growth.



Thank you!

References

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