



Embedded Mobile Newsletter

Monthly Newsletter August 2009

The GSMA's Embedded Mobile programme was launched in 2008 following an internal market research study to explore the opportunities and challenges in developing a new market for companies in the mobile eco-system. Many of the issues raised from this work are beginning to be addressed by the mobile industry as you will see from the Industry Update news item.

This newsletter is the first of a planned series of GSMA publications and reports on noteworthy developments in the market and Association's activities in the embedded mobile sector. I hope you find this to be an informative newsletter and look forward to increasing the amount of information and collaboration necessary to grow this market.

Doug Chambers, Director of Market Development

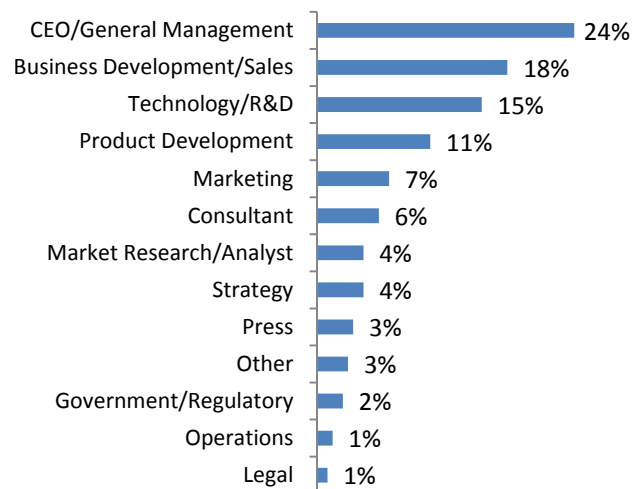
GSMA Embedded Mobile Programme gaining momentum since 2008 launch

Following the public launch of the Embedded Mobile programme at Mobile Asia Congress in November 2008, industry interest in this market was confirmed by the high level of interest in the inaugural Embedded Mobile seminar held at Mobile World Congress-2009 in Barcelona.

An audience of over 200 participants gathered to hear mobile operators, traditional M2M service providers and module vendors speak on a range of topics¹ about new opportunities and changes that will expand the size and scope of this market.

In July 2009, GSMA followed the momentum by launching a cross-industry initiative to develop industry guidelines for modules. In parallel, it announced a competition to promote best-in-class modules, devices and end-to-end services. These initiatives will form part of a broader programme of promotional activities for Embedded Mobile at Mobile World Congress-2010.

Embedded Mobile Seminar Audience at MWC 2009, by Function



¹ Speaker presentations are available at www.gsmworld.com/embeddedmobile (http://www.gsmworld.com/our-work/mobile_broadband/embedded_mobile/events_and_awards.htm)

What is Next for GSMA Embedded Mobile Initiative

Interview with Doug Chambers, Director of Market Development at GSMA by Svetlana Grant



What drove GSMA to launch the Embedded Mobile programme?

DC: In May 2008 in Cairo, the GSMA Board was discussing where the mobile industry would go next and what would be the new big opportunities. M2M market emerged as the most promising sector. We discussed it with vendors, operators and application developers and found that embedded mobile could be a much bigger market than M2M. We also came to the conclusion that if we used some of the same methods as with broadband notebooks in 2006, we could help build a new industry. In November 2008, the GSMA Board gave us a go ahead and the new programme was launched.

What has the Embedded Mobile programme achieved since then?

DC: In November 2008, we set several targets. Our first goal was to raise awareness and start bridging the knowledge gap among MNOs, vendors and manufacturers. As a first step, we launched an Embedded Mobile programme web site (<http://www.gsmworld.com/embeddedmobile>) and organised a seminar at MWC in February 2009, where we started evangelising the new industry.

Our second target was to start exploring the volume-related opportunity. After a number of discussions with operators and vendors, we identified several potential barriers to large scale deployments of embedded devices. To achieve a mass market penetration of embedded mobile services and devices, the industry needs to move away from the integration model, which is dominant in M2M market today, and bring down the cost of chipsets and modules. After Barcelona, we started working with manufacturers to promote specifications for embedded mobile modules.

In July, the work on the Embedded Mobile Guidelines started. We focus on 4 major vertical sectors and have industry champions who lead discussions in each area – Samsung in consumer electronics, AT&T in automotive, Telefónica O2 in smart metering/grids, and Telecom Italia in mHealth. The end result will be the Industry Guidelines Handbook, released in February 2010, in time for the Mobile World Congress in Barcelona.

At the same time, we launched a competition for the best modules, devices and services. It is open to anybody in the industry who has clever ideas for embedded mobile and it'll be a great showcase for innovation. We will announce the winner of the best embedded module in Hong Kong in November, and the winners of best embedded device and end-to-end service in Barcelona. There will be a lot of press coverage and publicity for new products and services, so I am encouraging everyone to participate.

With guidelines and competition under the belt, what is next for the Embedded Mobile programme?

DC: Industry analyst forecasts say that by 2025, there'll be 50bn embedded devices in the world. Ericsson has an even more aggressive target of 50bn by 2020. It's a big target from where we are today. If you plan such a large number of devices, you need to start looking at different business models and structures.

We envision work in several areas. First, we'll look at provisioning processes: If operators sell a large number of devices and roll out volume services, can their existing systems cope? If not, what changes need to take place? The next area is certification. Today, the industry is geared to certify handsets and has recently started working with notebooks. But if manufacturers start putting mobile chips in cars, heavy construction machinery, such as bulldozers, or medical and consumer devices – and all of these will require remote diagnostics to monitor them - how will operators manage it? Does the model need to change and what structural changes need to be made?

On top of this, we will continue to showcase and evangelise what is going on in the embedded mobile industry. We will be working on reports to give guidance on the size of the market and ecosystem. We will also continue to organise trade shows and events.

Do you think MNOs are ready to compete with systems integrators and vendors for the embedded opportunity?

DC: M2M modules have traditionally been an integration play because of their bespoke nature. We think that industry guidelines will tackle this barrier and new models will start to emerge. There will still be a lot of services driven by systems integrators, but once standard integration is sorted, they will be looking to MNOs to become a sales and distribution channel for a wider range of new products and services.

Look, for example, at smart meters. Once the initial integration work is complete, a large scale rollout will need to take place. In the UK alone, the target is to connect 46 million smart meters. On a global scale smart metering becomes a major segment by itself. After the rollout is completed you need to manage them. Some MNOs will have their own system integration divisions to do it, others will partner and become resellers of various connected devices, including smart meters. Since the size of the pie will grow, it'll be a bigger revenue opportunity for everyone.

Or take healthcare: In the US, the industry is worth \$2.2 trillion and in the UK the government's spending on healthcare is £110bn. The emphasis is on new technologies to use the money more efficiently. Bringing in mobile operators is how you would make that happen. The same with transport and smart cities - mobile networks will be right in the heart of the new smart systems, connecting companies and consumers.

How are MNOs involved in the Embedded Mobile programme?

DC: We already work with several MNOs who are leading in M2M and embedded mobile areas. We would like to see more of them join us in the work on the guidelines along with manufacturers, and share knowledge at conferences and events. If the MNOs and manufacturers who understand new

technologies share their experience and help to get business models right, the whole industry will benefit.

And last but not least -- As a consumer, what would you choose for your own home – a smart meter or a connected electronic device?

DC: Both! There is no doubt that there will be a smart meter in my home. It's good for me financially and it's good for the environment. What I'd also like to see is a connected home information system – a calendar with reminders of appointments, birthdays, TV shows and photos. It'll help me organise my life and be fun.

GSM calls for participation in the development of Embedded Mobile Guidelines

GSMA kicked off the work on Embedded Mobile guidelines in July 2009; the resulting Industry Guidelines Handbook will be released in February 2010.

The guidelines will be used by the industry to simplify module design and integration to reduce industry fragmentation, increase known volumes and economies of scale, and reduce upfront design costs.

To find further information and participate, email us at embeddedmobile@gsm.org

Embedded Mobile Sector - Gaining Shape and Momentum

In its Embedded Mobile report, published in November 2008, GSMA identified three main strategic enablers of the future embedded mobile growth: bigger commitment from mobile operators, industry consolidation and partnerships, and innovation. Since then, several significant developments have taken place in the industry, validating the GSMA's assessment of the market trends:

We said that MNOs needed to demonstrate greater focus on the embedded mobile market opportunity. Several operators are now fully on board; AT&T, Orange, Telenor and Vodafone have recently set up new business units responsible for M2M and embedded mobile solutions:

- In October 2008, AT&T launched its Emerging Devices business unit.
- Orange acquired *Mobile and Data*, a fleet management and telemetry provider, in January 2009. In May 2009, Orange launched an International M2M centre.
- In July 2009, Telenor, which currently provides M2M solutions through Telenor Connexions, launched a new business unit – Telenor Objects. Hot on Telenor's heels was Vodafone, which on 23 July introduced a global M2M service platform to enable smarter services; and in the US, Verizon and Qualcomm agreed to set up a joint venture that will work to enable M2M services and simplify the certification of embedded mobile devices.

The nascent embedded mobile industry needs to reduce fragmentation and simplify the process for launching new services. The consolidation started taking place in 2008, with Gemalto bidding for Wavecomm but eventually losing out to a higher bid from Sierra Wireless. Sierra completed the acquisition of Wavecomm in March 2009. In July 2009, Digi International acquired MobiApps, an M2M technology provider.

At the same time, a flurry of partnership activity took place between MNOs and M2M solutions providers:

- In March 2009, AT&T partnered with SmartSynch and Cooper Power Systems to improve energy management and applications; KTF and GE Healthcare partnered to develop an embedded mobile, AED;
- In April 2009, Numerex, GE and Telcel partnered to offer an alarm monitoring service. T-Mobile and Echelon joined forces to address the smart meter opportunity;
- In May 2009, AT&T and Jasper Wireless signed a cooperation agreement to develop embedded consumer devices, services and applications. Telenor agreed an M2M partnership with Telit; in parallel, it also signed a pan-European agreement with Qualcomm to provide a flat-fee SIM to Qualcomm's European enterprise customers.
- In June 2009, Airbiquity and Telenor agreed to an European initiative in the areas of automotive and fleet management

Innovative developments will start to address the particular needs of embedded mobile applications. Several innovative solutions made an appearance in the last year. In October 2008, Telenor Sweden

received a patent for eSIM, a solution for the next generation M2M and telematics communication developed in co-operation with Strålfors, a Swedish B2B information transfer company. Telenor started the rollout of Gemalto's eSIM in April 2009. Also in April 2009, T-Mobile (USA) launched a tiny embedded-SIM for M2M. What needs to happen next is the application of new technologies, services and devices in trials of new business models and service delivery partnerships.

GSMA Announces Best Embedded Mobile Module, Device and Service Competitions

To further encourage the innovation in the embedded mobile modules and services, in July 2009, GSMA launched the competition for module, device and service developers. An evaluation panel consisting of senior representatives of participating MNOs (The Steering Committee) will be responsible for evaluating competition entries.

The submission of entries for the best embedded module will close at 17:00GMT on 1 October, with the results reported at Mobile Asia Congress, held in Hong Kong on 18-20 November 2009. Entries for the best embedded device and service will be accepted until 17:00GMT on 1 January 2010. The results will be announced at MWC in Barcelona on 15-18 February 2010.

More details can be found on our website: http://www.gsmworld.com/our-work/mobile_broadband/embedded_mobile/competition.htm

Proposals shall be submitted by 1 January 2010, 17:00h GMT.

If you wish to participate, please visit the Competition web site at: http://www.gsmworld.com/our-work/mobile_broadband/embedded_mobile/competition.htm

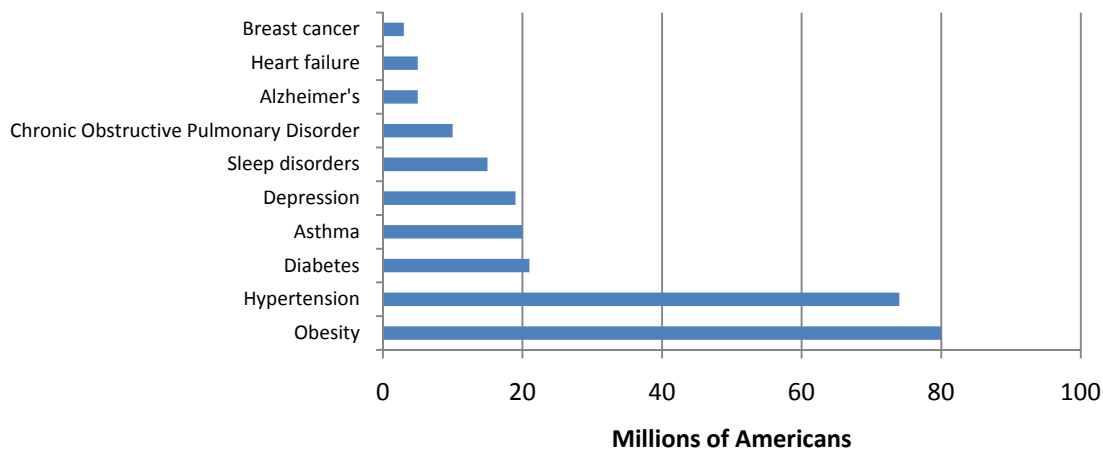
Following the money in mHealth

The Embedded Mobile programme looks closely at business needs of specific vertical industry segments. mHealth is one of the main sectors drawing the attention of mobile operators, vendors and manufacturers, and the first one we address in this inaugural issue of the Embedded Mobile newsletter.

The health needs of the global population are changing and healthcare systems are struggling to keep apace. More than 600 million people are now older than 60, as many as 1bn adults are overweight and 860 million suffer from chronic diseases. Governments and the healthcare industry, faced with the explosion of health costs, are turning to technological innovations for solutions. In North America, the Obama administration’s attention to the cost saving potential of wireless technologies is a crucial driver of growing interest in mHealth.

On 25-26 June, the USA’s National Institutes of Health held a major conference² to explore the market for telehealth. Dr. Eric Topol who chairs the West Wireless Health Institute, spoke about the future of wireless medicine and outlined his top-10 list of conditions that stand to benefit from wireless health (see **Exhibit 1**).

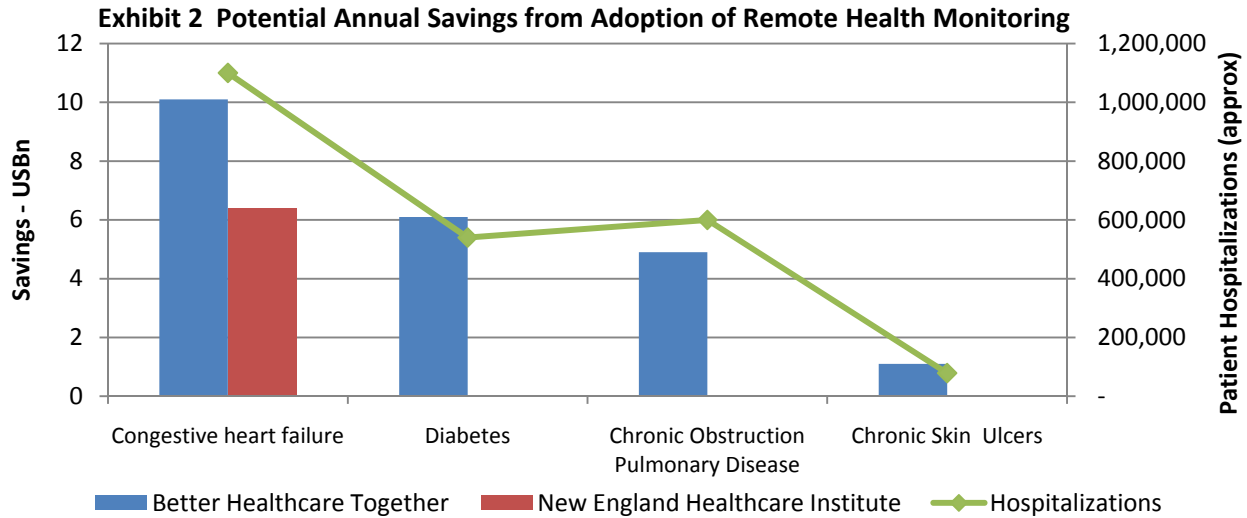
Exhibit 1 Top Ten Conditions and Diseases Benefiting from Wireless Health services



SOURCE: Eric J. Topol, M.D. Scripps Translational Science Institute & West Wireless Health Institute

Many of these conditions can be addressed with existing mobile technologies such as SMS (for appointment and medication reminders) as well as video consultations. As regards Embedded Mobile solutions, one of the most promising opportunities is in remote patient monitoring; for example, mobile devices can be used to monitor cardiac or blood pressure indicators. Estimates of the size of the remote patient monitoring market in the USA suggest the potential for the health care industry to achieve savings of billions of dollars (see **Exhibit 2**).

² Future of Telehealth: Essential Tools and Technologies for Clinical Research and Care - June 25-26 2009, Washington DC



SOURCE: Betterhealthcaretogether.org, New England Healthcare Institute

Before mHealth can deliver its benefits to millions of patients, however, the industry will need to do some serious homework on business models and partnerships with medical and pharmaceutical institutions. The experience of one leading mHealth service provider, US-based CardioNet (<http://www.cardionet.com/>), shows that the path to success will not always be smooth.

CardioNet provides next-generation ambulatory cardiac monitoring service with real time monitoring and wireless ECG transmission. The company is credited with establishing the reimbursement codes for wireless cardiac monitoring, making this a service that is eligible for reimbursement³ by health care insurance providers. The fees chargeable for designated treatments are critical for wireless health companies because they directly affect a company’s bottom line. On 10 July, CardioNet’s business plan assumptions and stock price were thrown into turmoil when it announced that its reimbursement rate per service was to be cut from \$1234.07 to \$754, a far more severe cut than the company or analyst community had expected.

Despite the experience of CardioNet, the prognosis for mHealth is positive – wireless connectivity has a major role to play in delivering more cost effective care, improving patient outcomes and delivering a better quality of life. There is money to be followed! However, CardioNet’s experience shows that significant industry education, a more complex business value chain and a business case that can withstand the types of price declines more commonly associated with the telecoms industry will be critical elements to success.

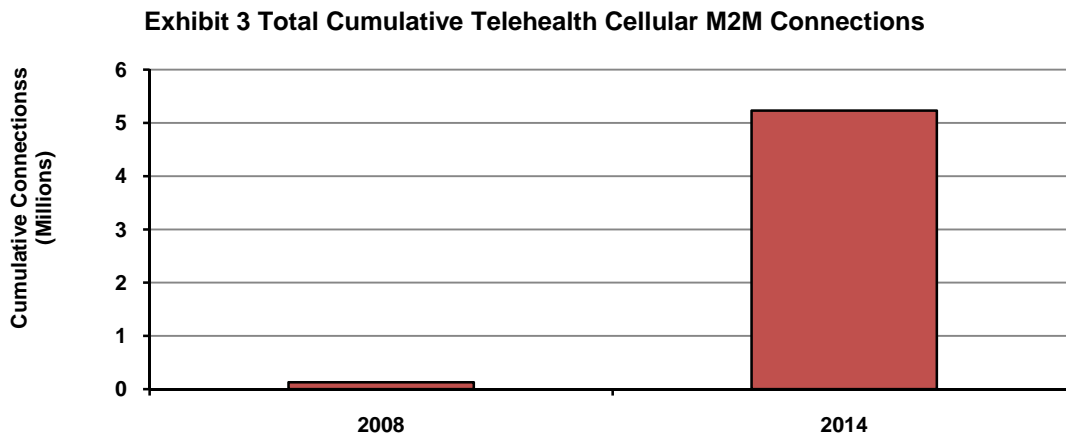
³ In the USA, the Centres for Medicare and Medicaid Services (CMS) specifies the fees it is willing to pay clinicians for prescribing specific products and services. Commercial payers use those rates as benchmarks for their own — so the importance of reimbursement can’t be overstated.

Forecast Snapshot

In each newsletter, we will highlight recent market intelligence from different market research firms that focus on the embedded mobile and M2M sectors. In this edition, we have ABI Research's perspective on the growth of telehealth embedded cellular connections. Firms interested in contributing to this section should contact us at embeddedmobile@gsm.org

In-Home Telehealth Cellular Connections to Grow at 85% CAGR by 2014

Home-based telehealth embedded cellular devices are at an early stage of growth. According to the Wireless Telehealth Report recently published by ABI Research: 130,000 embedded telehealth cellular connections are currently in service. ABI forecasts their number to grow at 85% CAGR in the next five years to reach 5.23m in 2014 (see **Exhibit 3**).



SOURCE: ABI Research Report: Wireless Telehealth: Embedded Cellular Technology in Healthcare Applications (July 2009 - <http://www.abiresearch.com/research/1003408-Wireless+Telehealth>)

This forecast includes several types of devices, including home-based Remote Patient Management devices which assist with treatments of specific diseases, such as diabetes and congested heart failure; Ambient Assisted Living devices that monitor living conditions and behaviour of people at risk, for example, the elderly; as well as embedded Mobile Personal Monitoring systems, which use an embedded cellular connection for the gateway.

Strong competition from the fixed sector is an important consideration behind this forecast. According to Sam Lucero, ABI's Director of M2M Practice, most medical home devices are currently connected via dial-up or fixed broadband technologies. "A strong case can be made for migrating to cellular," says Mr Lucero, "as it enables the delivery of turnkey solutions, and mobility is an attractive feature even for home-based devices. However, the cost to integrate an embedded cellular connection, both to the device maker for development costs and the end-user for on-going connectivity costs, is a barrier when dial-up and fixed broadband connectivity are already in use."

At the same time, ABI sees larger cellular opportunity for the broader Mobile Personal Monitoring segment, including systems utilizing mobile phones and store-and-forward fixed broadband: it forecasts that by 2014, the market for wearable wireless sensors will grow to more than 400 million sensor devices.

To achieve faster growth in both home-based and wearable embedded mobile devices, mobile industry has its work cut out. For more price-competitive devices to reach consumers, re-imburement issues need to be worked out and application development costs need to be brought down.

In addition, European and Asian companies need to get more involved. In the Wireless Telehealth Report, ABI expects that a large proportion of the future growth will come from North America; service innovation in this region is driven by certain hospitals and local healthcare systems, such as the Boston-area Partners Healthcare System's Centre for Connected Health, in which performance is measured by patients' health rather than on a fee for service basis. In Europe and Asia, mHealth is starting to take off in the UK, Germany, Japan and Australia, however, the rate of commercialisation of innovative mHealth services needs to increase to translate into higher number of embedded cellular connections in service.

Find out more and participate in the Embedded Mobile programme

Submit your ideas for the next issue of the newsletter: We are currently looking for articles, questions and suggestions of topics to discuss in our next newsletter. Please send us your suggestions to embeddedmobile@gsm.org

Embedded Mobile portal

The GSMA's Embedded Mobile portal includes a library of industry reference documents. In July, new case studies of M2M solutions from Wylless and Netcom have been posted on the site:

http://www.gsmworld.com/our-work/mobile_broadband/embedded_mobile/case_studies.htm

More companies are called upon to submit their use cases and register with the Ecosystem Directory. Please email the case studies to embeddedmobile@gsm.org and visit http://www.gsmworld.com/our-work/mobile_broadband/embedded_mobile/ecosystem_directory/ecosystem_directory.htm to register.

Embedded Module Guidelines work stream

It is not too late to get involved in the ongoing work with the Embedded Mobile guidelines working group. After the initial workshop, which took place in London on 7-8 July, the next meeting will take place in Atlanta, GA (USA) on 3-4 September 2009, and the final workshop is scheduled for November. To take part, please email GSMA at embeddedmobile@gsm.org

Embedded Mobile Programme at Mobile World Congress in Barcelona (15-18 February 2010)

The 2010 event in Barcelona is approaching fast. The preparations for the next year's Mobile World Congress have now begun, and GSMA is actively seeking industry input to its plans. Send your suggestions and wish lists to embeddedmobile@gsm.org.

Recent Analyst and Press Coverage of GSMA Embedded Mobile Programme:

[Will the GSMA Really Standardize Embedded Cellular Modules?](#) -- Insight article, ABI Research, 5 May 2009

[GSMA drives embedded-module takeover](#) - Telephony Online, 8 July 2009

[GSMA Advances Embedded Mobile Initiative With Launch of Competition](#) - GSMA Press Release, 30 June 2009

[GSMA to set up task group for M2M, smart grids](#) -- greentelecomlive.com, 7 July 2009