



Support for device management in mobile handsets: 2007-2009 (4Q07 update)

30 July 2008

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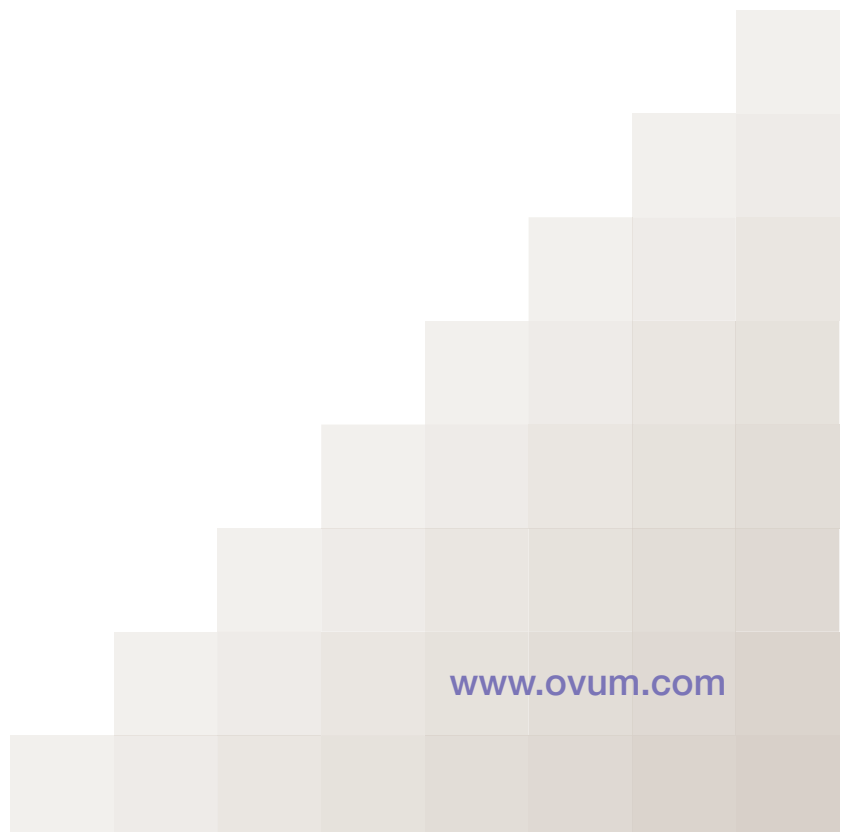




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Support for device management in mobile handsets: 2007–2009 (4Q07 update)

Executive summary

About this study

This study is the fourth iteration of a series of four quarterly studies, covering 4Q07 onwards. It updates the findings of Ovum's previous quarterly study.

Growing support for advanced mobile device management (MDM) technologies in mobile handsets promises to give the mobile service provider a much increased degree of control over the device fleet. Key applications of MDM include remote configuration, defect fixing, diagnostics and software management.

However, as with most new handset technologies, tracking actual penetration of the key technologies within mobile handsets is a highly complex task. Even where data is available, it is not updated regularly enough to capture potentially significant short-term market changes.

This makes life difficult for mobile service providers, which need an up-to-date picture of penetration in order to decide whether and when they should be scaling up the use of MDM in their businesses. For vendors in the mobile device management space, an accurate picture of handset support will help them to build the business case when selling and marketing their solutions to customers. Handset manufacturers need to understand how they compare to the competition when it comes to support for these key enabling technologies.

This report therefore gives a detailed insight into the current penetration of MDM technologies in mobile handsets, and gives Ovum's predictions for future market development. In particular, we track support for three key technologies:

- OMA client provisioning (OMA CP)
- OMA device management (OMA DM)
- firmware over-the-air (FOTA) update.

This study is based on exclusive primary data representing over 900 handsets launched worldwide since 2003. It therefore provides a well-evidenced picture of the market as it really is.

Key messages for this quarter

- In line with Ovum's forecast, this quarter shows incremental growth for all MDM technologies in handsets.



- Our estimates show that 40% of handsets shipped in 4Q07 supported FOTA (no change from 40% in 3Q07, although absolute shipments in 4Q07 rose by 16 million units), 50% supported OMA CP (up from 48% in 3Q07) and 32% supported OMA DM (up from 31% in 3Q07).
- Nokia is continuing to ramp up its support for all three MDM technologies in its device portfolio, accounting for most of the growth this quarter. Motorola's share of MDM shipments has fallen sharply, with the remaining vendors showing a slight decline in their overall device shipments for this quarter.
- In the FOTA market, Red Bend's shipments have surged ahead of its competitors this quarter, benefiting significantly from Nokia's shipments. As a result, Red Bend has taken market share from both HP and InnoPath.

Definitions

OMA client provisioning (OMA CP)

OMA CP 1.1 was the first device management technology that the Open Mobile Alliance standardised; although first published in 2002, it was not finalised until 2005. It was designed to be an industry standard alternative to the various proprietary protocols then in use, which included Nokia-Ericsson Smart Messaging and Openwave Primary Provisioning. OMA CP extends the client provisioning functionality included in WAP 2.0 ('WAP provisioning'), so is meant for use with WAP-enabled devices.

'Client provisioning' is the process of remotely readying a mobile device for active service, primarily by configuring communications settings, with minimum user interaction. OMA CP provides for the two basic phases of client provisioning: bootstrapping (establishing a trusted connection between client and server for the first time) and continuous provisioning. OMA CP supports provisioning either over the air or via a SIM card. Primary communications settings can be configured, as well as, optionally, application settings such as multimedia messaging, email, streaming and so on.

OMA CP is very much a first-generation device management technology, in that it only allows for one-way communication. Bootstrap requests and settings are pushed out from client to server without any way of interrogating the device to find out what the local status is. This rules out its use in many of the advanced device management applications now being implemented by service providers, such as FOTA and diagnostics.

OMA CP is not transport-independent; it uses WAP Push for delivery to mobile devices, either over the air or via a SIM card. It is bearer-independent, but in practice has not been used outside the GSM world due to the delayed and patchy implementation of WAP in CDMA networks. The CDMA world has used its own client provisioning protocols (in particular IOTA, which started life as an Openwave technology but is now the responsibility of the 3GPP2). This is now changing, as the global cellular community converges around OMA DM for device management.



OMA DM is the recognised successor to OMA CP. As a result, it has been agreed by the Open Mobile Alliance that most new development on OMA CP will now cease.

OMA device management (OMA DM)

OMA DM was inherited by the Open Mobile Alliance from The SyncML Initiative, which first published its work on SyncML-based device management in 2002. The SyncML Initiative was absorbed into the OMA, which released its first approved version of OMA DM (version 1.1.2) in early 2004 and the latest version, 1.2, in early 2007. SyncML DM is therefore synonymous with OMA DM versions 1.1 and below.

OMA DM represents the second generation of device management technology, bringing not only a truly global standard but also the crucial two-way communication stream that its predecessor lacked. OMA DM is also extremely versatile and extensible, which increases its appeal to OEMs that wish to differentiate themselves – a real achievement for an industry standard operating in such a strategic domain.

Two key aspects of the OMA DM architecture that provide for this extensibility are management objects and the management tree.

Almost any aspect of a mobile handset can be defined as an OMA DM management object, so long as its boundaries can be clearly identified, and it is amenable to being updated dynamically (added, edited or removed remotely). Objects could include user applications, middleware components, service settings or the firmware image. There are some mandatory objects in the specification, and the OMA is in the process of defining further optional objects. These include FUMO (for firmware update, which is described below), SCOMO (software component object, for software management) and DIAGMON (for diagnostics).

The OMA DM management tree is a hierarchy-based framework that enables an OMA DM-compliant server to recognise which management objects a particular connected device supports, enabling the server to treat the handset according to its precise capabilities. The beauty of this idea is that OEMs can define their own objects if they have specialist requirements. As long as they provide the requisite technical information to OMA DM server vendors, there should be little negative impact on interoperability.

OMA DM is explicitly bearer-independent and also (unlike OMA CP) transport-independent, so can be used in a very wide variety of communications scenarios: for example HTTP, WSP and OBEX, over all flavours of cellular mobile, Bluetooth, PC cable, WiFi and so on. It has accordingly met with wide acceptance and is being implemented in every region, including by CDMA operators and in Japan. Formal collaboration between the 3GPP2 and the OMA has resulted in recommended practices to aid interoperability between OMA DM and IOTA.



Firmware over-the-air (FOTA) update

FOTA update enables a management authority, such as a mobile service provider, to remotely update files stored in the firmware of a mobile handset, including over the cellular network. This is as opposed to cabled firmware update via a PC or other terminal, which has been in existence for many years.

Some early or basic implementations allowed the updating of certain restricted areas of the firmware only. Today, most FOTA implementations update the entire firmware image of a handset, enabling (primarily system) files to be upgraded. In recent years this process has been made easier and quicker by the use of delta files, which minimises the amount of data sent over the air by sending packages that only contain the changes, rather than the new firmware image in its entirety. Newer FOTA technology coming to market now enables the management of particular components, by dividing the firmware image into modular blocks associated with particular applications which can then be updated separately.

Initial FOTA implementations used proprietary protocols to communicate between the FOTA client on the handset and the FOTA server in the network. However, these protocols are now being replaced by OMA DM, via FUMO (the Firmware Update Management Object), which was approved in February 2007. This does not mean that OMA DM or FUMO are the same as FOTA, nor that FOTA is being displaced – there will still be a need for proprietary FOTA technology in both client and server.

For the purposes of this study, we count all of the above FOTA functionality, basic or advanced, whether it uses OMA DM or proprietary protocols for the transport. However, we only count handsets where we believe that the FOTA functionality is available for service providers to use. In some cases, this may require service providers to turn on FOTA remotely.

Shipments and installed base

'Shipments' means the number of handsets which have shipped to end users during the given period. Installed base means the number of handsets which have shipped to end users and which are still in active use on a cellular network, given as of the end of the period.

Whereas quarterly shipments show us what is happening with new devices, installed base is a good way to assess the status of a service provider's actual subscriber base, which will of course contain a large number of older devices.

Results of the study

Current penetration of device management technologies

Table 1 shows the current penetration of the technologies, as of 4Q07.



Table 1 **Global penetration of MDM functionality in handsets, 4Q07**

FOTA	(000s)
Shipments (during the period)	130,409
Installed base (as of end of period)	682,628
% of global handset shipments	40%
OMA CP	
Shipments (during the period)	165,220
Installed base (as of end of period)	1,037,404
% of global handset shipments	50%
OMA DM	
Shipments (during the period)	104,864
Installed base (as of end of period)	451,633
% of global handset shipments	32%

Source: Ovum

Commentary on this quarter’s results

In line with Ovum’s forecast, this quarter shows incremental growth for all MDM technologies in handsets. Our estimates show that:

- 40% of handsets shipped in 4Q07 supported FOTA (no change from 40% in 3Q07, although absolute shipments in 4Q07 rose by 16 million units)
- 50% supported OMA CP (up from 48% in 3Q07)
- 32% supported OMA DM (from 31% in 3Q07).

Last quarter’s forecasts for FOTA and OMA CP proved reasonably close to the mark, within 5% of actual 4Q07 results.

With OMA DM support in nearly one third of all handsets now shipping worldwide, it is clear we are now at a critical point in terms of adoption of this key technology. Service providers looking to offer device management services based on OMA DM should find they have a good choice of handsets across a range of price points. A number of the larger service providers have or are in the process of implementing OMA DM servers, including Sprint, Vodafone, T-Mobile, Telefonica and Softbank, as well as vendors including Nokia.

We are also continuing to see a close relationship between OMA DM and FOTA. Shipment numbers for the two technologies are converging as OEMs increasingly replace proprietary transports for FOTA with OMA DM, via the FUMO specification.



In 1Q07 the ratio of OMA DM to FOTA shipments was 50%, but this grew to 74% in 2Q07 and 3Q07 and to 89% during 4Q07.

Firmware updating is by no means the only application of OMA DM that interests service providers. OMA DM is already being used for more sophisticated types of device configuration than OMA CP is capable of, such as continuous provisioning in conjunction with automatic detection. It is handling client provisioning for new value-added services being offered by operators, and supporting important commercial functionality such as preferred roaming lists.

As the OMA finalises more standardised management objects, such as those for software updating and diagnostics, the relevance of OMA DM will continue to grow to all service providers. Even without a full set of standardised objects, service providers are still making use of the proprietary ones provided by the larger OEMs. For example, Nokia phones support a pre-standard version of SCOMO (software component management object) for software management, which is being used by some service providers to support enterprise device management services.

Regional differences

The above figures are global, so they represent an amalgam of the situation in each unique region and segment of the cellular market. This means that they hide some quite significant differences. Looking at handset support for MDM in different regions, it is clear that the differences are largely driven by two factors:

- which radio network technology is prevalent in the area. So for example, last quarter we commented on the apparent lack of OMA CP support outside the GSM world due to the specification's dependence on WAP
- overall mobile handset availability in the region. So if OEMs have smaller portfolios in a given region, then the absolute number of MDM-supporting models available in that region will be lower, and therefore operators looking to launch advanced MDM services will have fewer choices when it comes to handsets.

Europe and the US have been well supported over the last two years, in terms of high availability of advanced MDM-supporting handsets. Over the last year the Middle East and Africa (MEA) region has been in catch-up mode. Whilst it hasn't accumulated the same installed base, or as many models supporting MDM as Europe, over the same time period it now has more models supporting FOTA and OMA DM than the US. For example, we counted around 72 models launched in Europe during the last year that supported OMA DM and FOTA, around 47 models supporting FOTA in the US, and nearly 34 for OMA DM in the US. That compares to around 51 handsets supporting FOTA and around 45 supporting OMA DM available in MEA.

Support for FOTA is considerably higher in Japan than in any other region, due to early implementation and the strong buying power wielded by Japanese operators. This is pulling OMA DM support along in its wake, as Japanese operators transition



to FUMO. We understand that two out of the four major Japanese operators are in the process of migrating to OMA DM, with the other two expected to follow soon.

Support for FOTA and OMA DM is generally higher in handsets supporting third-generation cellular network technologies. This difference seems particularly apparent when comparing second- and third-generation CDMA handsets, with CDMA2000 handsets showing significantly higher support for both technologies.

Transparency of support for MDM is poor

However, there is an ongoing problem regarding transparency of support for advanced MDM in the more developed markets. In other words, it is not possible to guarantee that the phone in a given subscriber's hand supports these technologies, even if we know that the OEM has implemented the technology for that model.

This is because:

- some OEMs (LG, for example) implement the technology upon operator request, but it is not widely in vanilla handsets
- some operators ask OEMs to remove technologies from handsets to be used on their networks, for their own security or strategic reasons.

This situation is made more difficult by OEMs claiming to support MDM technologies to ensure that a handset is ranged within a mobile operator's handset portfolio, whereas in reality the handset lacks the basic support that is required (for example, OMA DM).

In addition to this, there is an ongoing lack of public information on support for OMA CP, which we commented on last quarter.

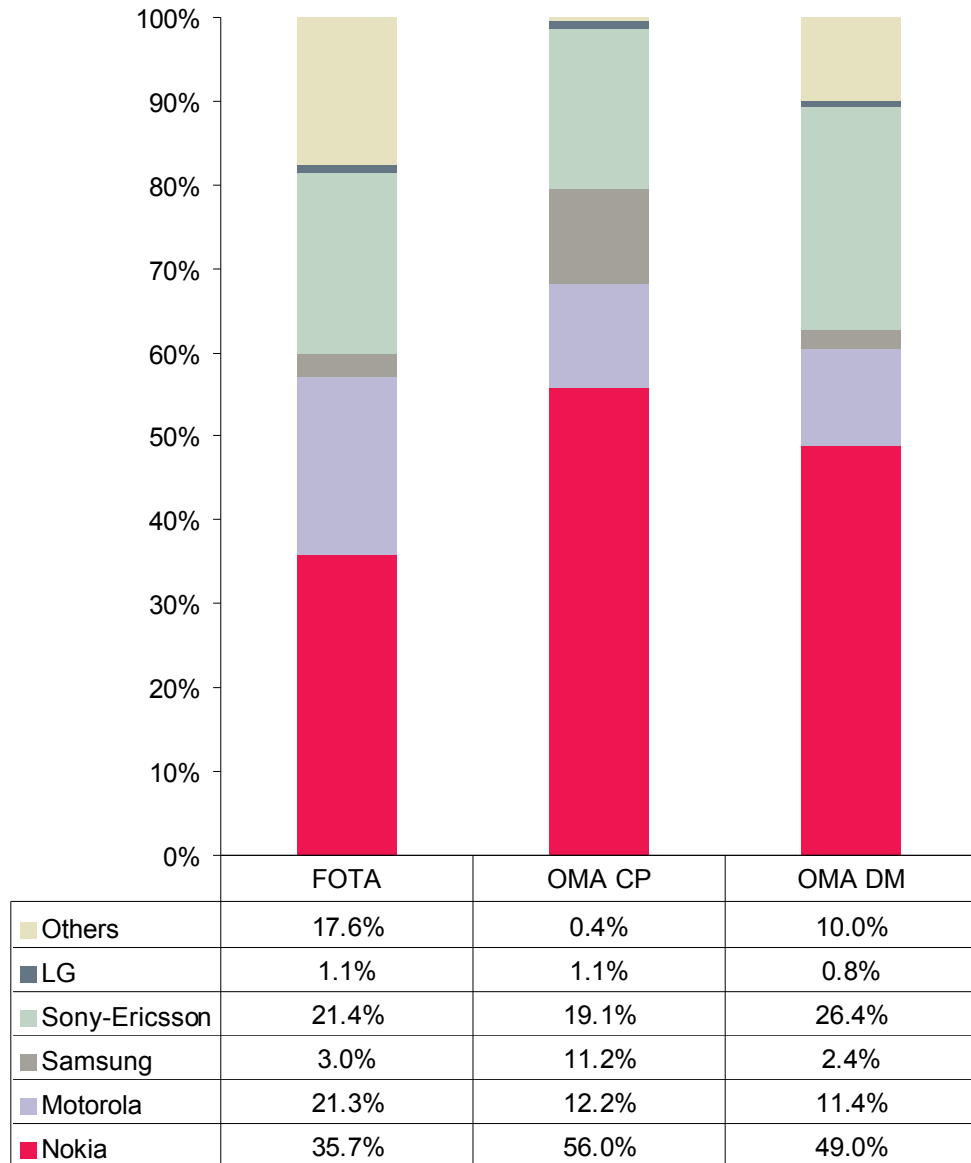
We believe that this lack of transparency is a thoroughly bad thing when it comes to adoption of MDM services, making it much harder for operators to assess the readiness and capabilities of their own device fleets. Plus, having OEMs treat every operator differently adds to the overall cost of implementing advanced MDM in handsets, and may lead to more differences in implementation of the standards than are necessary.

Comparisons by handset manufacturer

Figure 1 shows the share of each major handset manufacturer in global shipments of the three technologies.



Figure 1 OEM share of MDM shipments, 4Q07

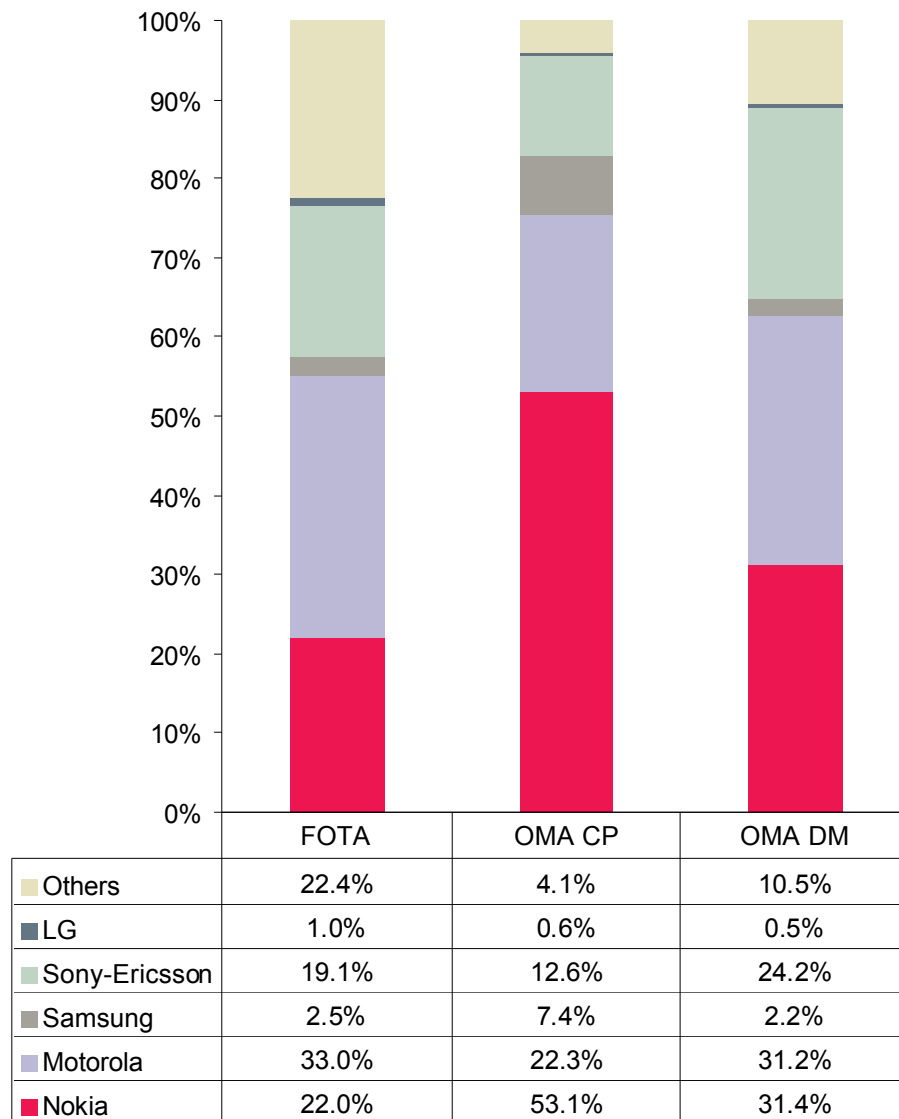


Source: Ovum

Figure 2 shows the same but for the global installed base of the MDM technologies.



Figure 2 OEM share of MDM installed base, 4Q07



Source: Ovum

This quarter's results are dominated by the movement, in opposite directions, of two vendors: Nokia and Motorola.

Nokia's continued advocacy for MDM technologies coupled with its dominance of the handset market is significantly influencing the shape of the MDM market. As in 3Q07, Motorola's continued weakening in the handset market is showing through with a significant drop in its percentage share of MDM-supporting handsets.



Nokia's share of MDM shipments for both FOTA and OMA DM has increased by 9% points from 3Q07; this is on top of a 10% point increase in OMA DM in 2Q07. Nokia's support for OMA CP has also risen by 7%. This is consistent with Nokia's commitment to MDM and its ramping up of shipments over the last three quarters.

Motorola's shipment's for all three technologies is down again this quarter. Its share of shipments for FOTA, OMA CP and OMA DM have dropped by 5%, 5% and 6% respectively from 3Q07; this is on top of a 4% drop in FOTA and OMA DM in 2Q07. However, the reasons for the decline are unchanged from last quarter. Motorola's devices business is still suffering from a period of uncertainty and instability.

As mentioned in the previous quarterly update, Ovum does not expect Motorola's continuing drop in market share to adversely affect broader support for MDM as its lost market share outside of the US is being picked up by both Sony Ericsson and Nokia (both strong MDM supporters). Any ground lost by Motorola within the US will be filled by manufacturers that can meet the carriers' many requirements, including those for MDM support.

Samsung's and LG's share of shipments are both down this quarter, but not by a significant percentage. Both companies are still far behind their competitors in support of MDM. As Ovum commented in the previous quarter, the extent of the lack of support seems inconsistent with the overall market, particularly with respect to OMA CP and OMA DM. A possible explanation for the seemingly low penetration is a lack of global publicly available information on MDM support within handsets, particularly for LG. LG and Samsung both add support for MDM at the request of operators, and this support may not be part of the initial handset specification. This practice leads to inconsistent information, as the information available from the vendors can be out of step with the handsets that are actually available through the operators.

Given that Samsung is the most likely OEM to pick up market share inside the US from Motorola, the issue of lack of visibility of MDM support within its handsets will become an increasing problem during 2008.

Sony Ericsson's share of MDM shipments is slightly down again this quarter, and its share of shipments has declined slightly over the last two quarters. This is a reflection of Sony Ericsson's ageing handset portfolio during the second half of 2007. Its percentage share of MDM shipments will likely improve through 2008 as it refreshes its handset portfolio.

FOTA vendors

Three vendors are currently the main providers of the FOTA client technology which is embedded in mobile handsets by manufacturers:

- Red Bend Software
- InnoPath
- HP (previously Bitfone, which was bought by HP in February 2007).

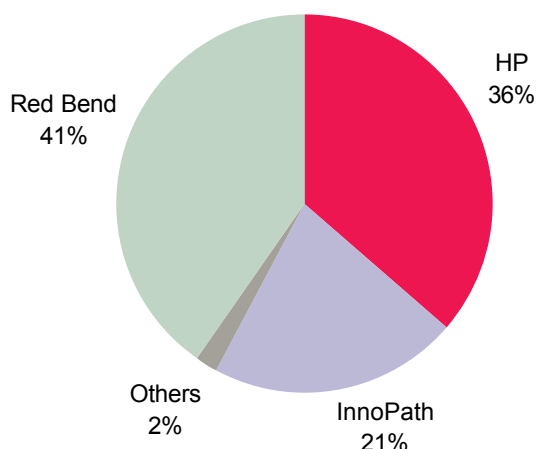


In addition to this, some manufacturers have built their own FOTA technology. We believe Samsung has done so; Microsoft also has been using its own FOTA/OMA DM technology in Windows Mobile versions 5 and 6. However, Microsoft supports OMA DM in the latest version of Windows Mobile, version 6.1, which was launched in 2Q08.

The market for FOTA client technology is very fluid; our research shows that most manufacturers have worked with more than one vendor. In the Japanese and CDMA markets this is inevitable, because FOTA implementations by service providers are closely tied to specific mobile handsets, meaning that manufacturers are often required to implement a particular vendor's technology. Yet even in devices meant for the open market, manufacturers frequently experiment. For example, Motorola now awards a growing proportion of its FOTA work to Red Bend, having worked exclusively with HP during the preceding years.

Figure 3 gives a market share analysis for installed base of FOTA clients, as of the end of 4Q07.

Figure 3 **FOTA client market shares, 4Q07 installed base**



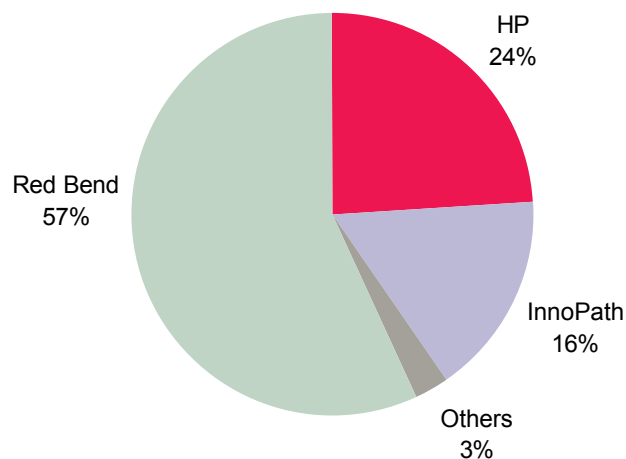
Source: Ovum

Red Bend has continued to take market share from both HP and InnoPath. Red Bend has increased its market share each quarter during 2007. This is due to strong, but not exclusive, shipments of FOTA-enabled handsets by both Nokia and Sony Ericsson, both of which use Red Bend's FOTA client.

This can be seen even more clearly in *Figure 4*, which shows market share for shipments of FOTA clients on mobile handsets in 4Q07.



Figure 4 **FOTA client market shares, 4Q07 shipments**



Source: Ovum

As in 3Q07, despite the overall growth in the market, the relative positioning of the three main FOTA vendors has remained largely unchanged. However, Red Bend is now clearly the dominant vendor, with well over half the FOTA shipments in 4Q07.

Last quarter we commented on InnoPath's over-reliance on the Japanese market, which has led to its overall market share declining as FOTA reaches saturation in Japanese phone shipments. InnoPath has not managed to extend its geographic reach to regions outside of Japan this quarter. InnoPath's global deal with Samsung has yet to make a significant impact on its FOTA shipments; this will be something to watch during 2008, particularly if Samsung manages to substantially grow its market share.

Forecast: 2007–2009

Market development scenario

Table 2 sets out the key assumptions that Ovum has made about the future development of the MDM market, as they relate to our forecast.



Table 2 Market development scenario: 2007–2009

Market development factor	Likely result
<p>The majority of device management transactions in GSM markets are taking place via OMA CP, and transaction volumes are still growing as basic MDM solutions are implemented in developing markets</p> <p>Pressure from GSM service providers in all geographies will ensure OEMs implement support for OMA CP in the few remaining non-supporting GSM handsets</p> <p>However, non-GSM service providers are moving straight from other protocols to OMA DM without implementing OMA CP</p>	<p>Some short-term growth in OMA CP penetration, up to 100% in GSM markets only</p>
<p>Service providers in developed markets are implementing advanced mobile device management solutions</p> <p>However, they are unwilling to pay for vendor-proprietary MDM clients to be embedded in handsets – as well as the additional cost, this model severely restricts the number of subscribers within reach of advanced MDM</p>	<p>Increased demand for OEMs to support OMA DM as a standards-based alternative to proprietary MDM client technologies</p>
<p>With no rival technology on the horizon, and strong demand from service providers in all markets, handset OEMs step up implementation of OMA DM – starting with high-end and mid-tier devices</p>	<p>Strong growth in OMA DM penetration, towards an eventual ceiling of 100% across all markets and OEMs (beyond our forecast period)</p>
<p>Service providers in developed markets are implementing FOTA (as part of advanced MDM solutions) in response to growing problems with handset defects</p> <p>There are fewer requests to disable FOTA in capable handsets. Although some handset OEMs are already implementing FOTA aggressively, others are lagging behind and service providers are now exerting pressure on them to step up their efforts.</p>	<p>Strong growth in FOTA penetration, towards an eventual ceiling of 100% across all markets and OEMs (beyond our forecast period)</p>

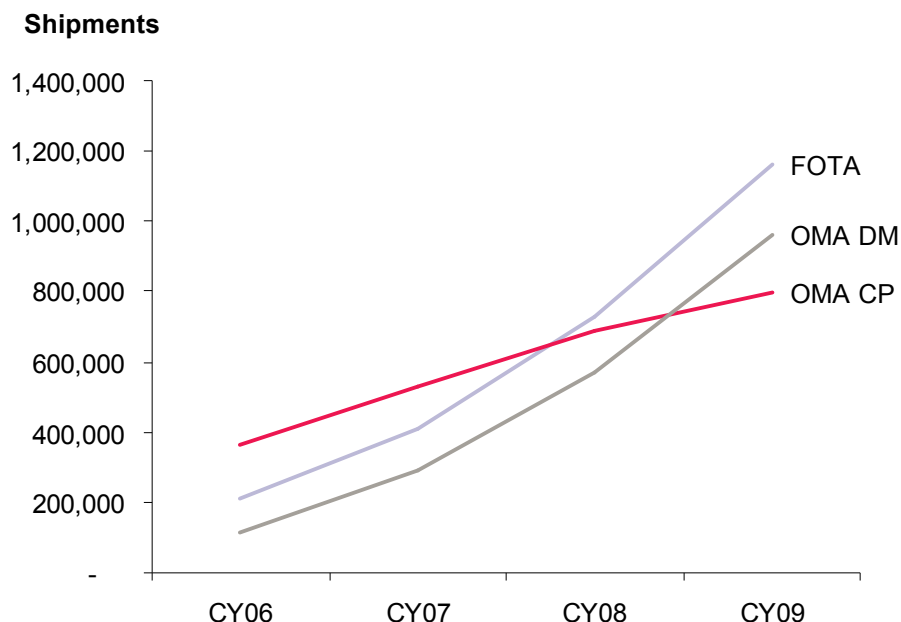
Source: Ovum

Ovum’s forecasts

Figure 5 gives a graphical illustration of Ovum’s forecast for shipments of all three technologies, looking back to 2006 for comparison and forward to 2009.



Figure 5 Forecast for shipments of MDM technologies on handsets, 2006–2009



Source: Ovum

Our research shows that the penetration of all MDM technologies in handsets is growing strongly – even OMA CP, which is now viewed by many as a legacy protocol. Between 4Q06 and 4Q07, shipments grew by a CAGR of 83% (for FOTA), 51% (for OMA CP) and 159% (for OMA DM).

We forecast continued strong growth for OMA DM and FOTA, to reach 44% and 57% of global shipments by the end of 2008. By the end of 2009, FOTA and OMA DM will be an established part of the handset technology landscape, with penetration of over half the installed base of handsets, and in 84% and 69%, respectively, of new mobile phone shipments.

The increasing adoption of FOTA will continue to drive the uptake of OMA DM as the FOTA market moves away from the use of proprietary protocols and towards OMA DM/FUMO.

We forecast that the penetration of OMA CP in handsets will continue to grow, as it has not yet reached 100% of the GSM market – its natural ceiling. However, growth is slowing down and will all but disappear by the end of 2009. Penetration of both FOTA and OMA DM in new shipments will overtake OMA CP during 2008. This simply reflects the fact that whilst OMA CP has been limited to GSM, FOTA and OMA DM have proved to be global technologies. However, OMA CP will remain a key technology in GSM markets for the foreseeable future – there is no reason for



OMA CP support to be removed from mobile handsets before OMA DM support is universal in both clients and servers.

Although there is no particular reason why penetration of OMA DM and FOTA should not eventually reach 100%, there will be non-supporting devices still in existence for some time after 2009. These will be found in those parts of the market where demand from service providers for advanced device management is not as acute, such as:

- in low-cost markets where advanced data services are not as important, making the business case for remote device management solutions less attractive
- for some fashion phones, which are designed for aesthetics and a very fast turnover rather than sophisticated functionality.

Table 3 gives Ovum's full forecasts, both quarterly and annual, for the same period.



Table 3 Forecasts for MDM technologies on mobile handsets

(000s)	4Q07	1Q08	2Q08	CY06	CY07	CY08	CY09
FOTA							
Shipments during the period	130,409	124,760	153,338	211,856	408,700	726,328	1,161,126
Installed base as of end of period	682,628	588,593	686,961	221,055	682,628	1,168,188	1,999,577
% of overall shipments	40%	43%	52%	21%	36%	57%	84%
% of installed base				8%	21%	32%	50%
OMA CP							
Shipments during the period	165,220	147,862	157,179	361,489	527,226	687,751	796,223
Installed base as of end of period	1,037,404	1,184,361	1,339,760	511,812	1,037,404	1,707,657	2,392,060
% of overall shipments	50%	51%	53%	36%	46%	54%	57%
% of installed base				20%	32%	47%	59%
OMA DM							
Shipments during the period	104,864	99,207	117,679	113,503	292,841	570,059	959,736
Installed base as of end of period	451,633	550,801	668,266	150,637	451,633	1,017,500	1,938,963
% of overall shipments	32%	34%	40%	11%	26%	44%	69%
% of installed base				6%	14%	28%	48%

Source: Ovum



Methodology

Historic and actual data, up to 4Q07

The primary input to this study is a comprehensive survey of mobile handsets launched over the past four years, feeding into a repository of nearly 900 handsets from all major manufacturers and listing their key characteristics, including support for FOTA, OMA CP and OMA DM, plus their date of launch and regional availability. This data is gathered from primary and secondary sources, including:

- manufacturer websites
- third-party websites (for example, MDM vendors, industry associations and resellers)
- standards bodies (particularly the Open Mobile Alliance)
- device manufacturers and FOTA vendors.

In order to create an estimate for how many FOTA, OMA CP and OMA DM-supporting handsets have shipped to date, we create a model to estimate shipments of each model as follows:

- using the data in the handset repository, we estimate what proportion of each major manufacturer's portfolio was FOTA-, OMA CP- and OMA DM-enabled each quarter between 2Q03 and 4Q07.
- using the data on regional availability in the repository, we give each handset a 'regional weighting' to reflect the fact that some handset models are distributed much more widely than others.
- we then use these two factors along with vendor market share data to estimate how many of those devices were shipped every quarter for the same period.

Note that the last step in the process has a tendency to over-estimate the number of handsets that were actually shipped. This is because only a few handsets are available on a truly global basis; in particular, many FOTA-supporting handsets are only shipped into certain carriers. The regional weighting stage deliberately compensates for this tendency.

In order to derive market shares for FOTA vendors, we use primary data supplied by the vendors to identify which individual handset models each one was responsible for. This data is tracked throughout the above process to produce FOTA vendor market shares.

The final results produced by the model are cross-referenced with data points supplied by industry sources, and the assumptions driving the model are refined where necessary in order to produce more accurate outputs. In particular, we cross-reference with royalty data from FOTA vendors.



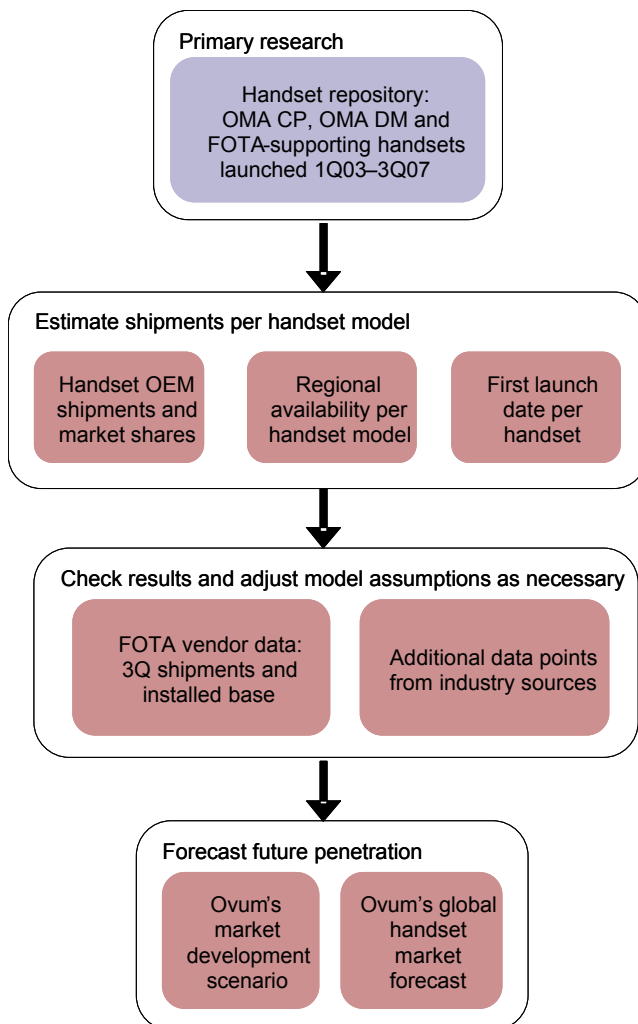
Forecast: 2007–2009

Our forecast uses exactly the same methodology as above, except that we use predicted rather than actual data on new launches of FOTA-, OMA CP- and OMA DM-enabled handsets.

We forecast new launches by extending the historic pattern of model launches per each individual manufacturer, informed by the assumptions embedded in our market development scenario as above. Each quarter we review our predictions from last quarter, changing our assumptions for future quarters if necessary.

Figure 6 gives a graphical illustration of the different stages of the methodology.

Figure 6 **Methodology: device management support in mobile handsets**



Source: Ovum



Key assumptions of the model

The methodology aims to keep complexity to a minimum by keeping certain factors static over the forecast period. We revisit these factors every quarter to ensure that they are still valid.

The key assumption encapsulated within the model is therefore that, over the forecast period, there is no significant change to:

- manufacturer market shares
- the regional distribution of shipments
- relationships between manufacturers and FOTA vendors
- the size of manufacturer portfolios (with the exception of BenQ-Siemens, to reflect the company's portfolio running down in the period before the company effectively ceased operating)
- portfolio refresh rates
- manufacturer strategies regarding smartphones.

We also assume that:

- on average, a given handset model remains available for end users to buy for two years after launch
- once shipped, a handset stays in the installed base for an average of four years.

Critique of the methodology

As actual shipment data for individual handset models was not available for this study, this key variable had to be derived using assumption-based modelling. Although we are satisfied that our methodology is robust, using modelling rather than actual data always introduces the possibility of error.

Although the handset database that drives the model is comprehensive, it is bound to contain gaps and errors, and there can be no guarantee that these gaps will not create systemic bias in the results. In particular, data availability for OMA CP was poor and had to be augmented by (evidence-based) assumptions.

All three major FOTA vendors (Red Bend, HP and InnoPath) kindly provided data on the penetration of their own technologies. Although Ovum always critiques, double-checks and sometimes edits such data to ensure it is comparable, we must assume that the data provided by vendors is accurate and we treat every vendor equally in this regard.

It is generally difficult to get an accurate picture of manufacturer portfolio sizes and refresh rates, mainly due to substantial regional variation and the lack of clarity as to what constitutes a unique model. This creates a certain amount of short-term elasticity in the outputs, although long-term trends are mainly unaffected.



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