EXECUTIVE SUMMARY

The much-longer-than-anticipated cycle of operator investment in 2G GSM and Enhanced Data rates for GSM Evolution (EDGE) networks – combined with moves by Verizon Wireless, NTT DoCoMo, and others to bring forward the commercial timescale for 4G UMTS Terrestrial Radio Access Network (UTRAN) Long Term Evolution (LTE) – is creating something of a “3G squeeze” on Wideband CDMA (W-CDMA) and its High Speed Packet Access (HSPA) releases. Continued high global investment in GSM/EDGE, combined with industry-wide disappointment in the performance of W-CDMA up until very recently, have served to contain investment in W-CDMA for either voice or data services. As a result, more than three out of four Europeans still uses a plain old 2G GSM phone today, rather than a 3G W-CDMA phone.

Over the last 18 months, HSPA has finally started to deliver on the mobile broadband marketing promise of 3G that has been bandied about since the late 1990s. There is genuine excitement on the part of users at being able to get out their laptops across extensive urban and suburban areas and consistently get at least 1 Mbit/s throughput over the air. Yet just as W-CDMA is finally starting to differentiate itself from 2G and establish itself as the preferred global platform for mobile broadband services, it faces the prospect of being made redundant by an acceleration in the time to market of the 4G mobile WiMax and LTE standards. These technologies have been designed to be deployed in much larger spectrum channel widths and offer better spectral efficiency, higher throughput, and lower latency than anything W-CDMA/HSPA can support.

3G Squeeze: GSM, LTE & the Future of Wideband CDMA delivers a complete analysis of the technology progression scenarios in mobile networks worldwide. Drawing on inputs from major GSM and W-CDMA/HSPA operators such as America Movil, AT&T, China Mobile, Millicom International, Orascom Telecom, and Vodafone, as well as interviews with major vendors, the report weighs the underlying technology, business, consumer, and regulatory dynamics that will determine the propensity of operators in different regions of the world to shift capex away from one technology and into another. The report assesses which market factors will have a material impact on the direction of operator capex and which won’t, and forecasts global operator capex on GSM/EDGE, W-CDMA/HSPA, and LTE technology through 2012.

The report also assesses the positioning of vendors in each of the major technologies and across the 3rd Generation Partnership Program (3GPP) family as a whole. It examines the positioning of relatively new entrants such as ZTE, along with incumbent vendors such as Nokia Siemens. These vendors are looking to adjust to a cellular infrastructure market that, despite having seen substantial vendor consolidation, is actually becoming a lot more dynamic. The report analyzes both their market positions and their strategies for success in this newly volatile environment.
Given the limited deployment of W-CDMA to date beyond Western Europe, Japan, and North America, vendors have not been able to take rising operator investment in W-CDMA infrastructure for granted in the last couple of years. What has shored up operator commitment – and seen spending not only sustained but increased at a global level – has been the proven performance of HSPA over the last 18 months as an enabler of genuine mobile broadband service capability.

While capex on GSM/EDGE remained flat from 2005 through 2007, W-CDMA infrastructure capex showed solid growth, with the total infrastructure market growing by $1.5 billion in 2007, to reach $14.5 billion worldwide. Heavy Reading expects GSM/EDGE capex to begin declining in 2008, while W-CDMA/HSPA capex will continue to grow through 2011. The main regional factors driving growth in W-CDMA capex were high investment in Japan; ongoing coverage buildout in mature markets such as Europe, North America, and parts of Asia/Pacific; HSPA upgrades in these same mature markets; and the first signs of initial investment in W-CDMA by GSM/EDGE operators in emerging markets in Africa, Eastern Europe, and South America.

Excerpt 1: Global Capex on GSM/EDGE & W-CDMA/HSPA (2005-2007)

Excerpt 2: Regional Distribution of W-CDMA/HSPA Capex (2007)
Report Scope & Structure

3G Squeeze: GSM, LTE & the Future of Wideband CDMA is structured as follows:

Section I is an introduction to the report, with complete report key findings.

Section II looks at the pattern of recent operator investment in GSM/EDGE and W-CDMA, sizes and analyzes the total GSM and W-CDMA infrastructure market by region and technology, and provides commentary on the approach that various operators have taken to investment.

Section III outlines a variety of new commercial, regulatory, political, and technological disruptors that are cutting across the 3GPP family of GSM/EDGE, W-CDMA/HSPA, and LTE technologies and materially undermining the orderly, sequential transition from one technology to the next. It also presents potential scenarios in which these disruptors could cause operators to switch from one 3GPP technology to another, or even out of the 3GPP family altogether and into WiMax.

Section IV analyzes the competitive positioning of GSM/EDGE technology, primarily as compared with W-CDMA/HSPA. This section also presents the drivers for EDGE Evolution, the next release of the GSM/EDGE standard, and explores the plausibility of GSM operators opting to skip W-CDMA/HSPA altogether, in favor of mobile WiMax.

Section V evaluates the competitive positioning of W-CDMA/HSPA technology and assesses the potential of HSPA and HSPA Evolution as high-throughput mobile broadband technologies. This section also explores the factors that will determine the breadth and depth of operator investment in HSPA Evolution – particularly the efforts to bring forward the superior LTE technology.

Section VI outlines our assumptions regarding how the changing market landscape will influence the overall size of the GSM, W-CDMA/HSPA, and LTE equipment markets, and presents Heavy Reading’s forecasts for the size of the 3GPP equipment market through 2012, together with commentary on the regional trends that will drive the expected pattern of investment.

Section VII explores the competitive environment across all 3GPP technologies and analyzes the competitive positioning of infrastructure vendors, including market-share figures for 2007.

Section VIII profiles the leading 3GPP infrastructure vendors, analyzing their market positions and strategies for success in a newly volatile market and technology environment.

The report is essential reading for a wide range of industry participants, including the following:

- **Mobile infrastructure technology suppliers**: How will the shift in carrier capex spending on GSM, W-CDMA/HSPA, and LTE equipment affect your business? Where are the new opportunities for market growth? Are your products and marketing messages in line with customer plans and expectations? Are there significant gaps in your product lines that need to be addressed to meet future demand?

- **Other equipment suppliers**: How and when will demand for mobile infrastructure technologies change? Which technologies are emerging as the most likely winners for tomorrow’s mobile networks? Is your company in position to take advantage of those trends?

- **Mobile network operators**: How do your plans for infrastructure deployment compare with those of your competitors? Do your technology choices give you a clear competitive advantage in terms of cost and performance, or are there better alternatives? Which technology suppliers are in the best position to deliver the solutions you need for your mobile infrastructure plans?

- **Investors**: Which technologies are emerging as the winning solutions for next-gen mobile infrastructure, and which companies are the leading providers of those solutions? How will shifts in capex for mobile infrastructure affect the telecom supply chain in the coming months and years?

3G Squeeze: GSM, LTE & the Future of Wideband CDMA is published in PDF format.