Global Handset Outlook: More Than Meets the i

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Demand & Market Share

	2005	*Chg.*	2006	*Chg.*	2007E	*Chg.*	'07 Mkt Share	'07 EBIT Margin
Nokia	265m	*28%*	348m	*31%*	411m	*18%*	*37.7%*	*19%*
Motorola	147m	*41%*	217m	*48%*	168m	*-23%*	*15.4%*	*loss*
Samsung	103m	*19%*	119m	*16%*	150m	*26%*	*13.8%*	*12%*
SonyEricsson	51m	*20%*	75m	*46%*	105m	*41%*	*9.6%*	*12%*
LG	55m	*23%*	64m	*17%*	81m	*25%*	*7.4%*	*10%*
Others	184m	*n/a*	162m	*n/a*	176m	*n/a*	*14.3%*	*n/a*
Total	**805m**	***21%***	**984m**	***15%***	**1,102m**	***12%***		

Huawei & ZTE look to be replacing Sharp, Option, at Vodafone

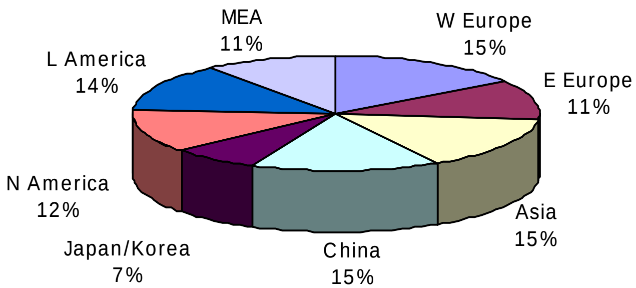
- **Nokia**, **Samsung** taking share, **Motorola** will struggle until 1H08; second tier continue to fall away (BenQ, Sagem, Sanyo, etc.)
- **Premium segment growing:** Nokia MM = 9m units at €290 ASP in 2Q07
- **No problem w/ demand** – 1.1bn units (c. 520m in 1H07, normal 45% split; 12-15% unit growth, c. 8% value growth **Global ASP = ~$120**

Relentless concentration of share continuing into '07

Top 5 Market Shares	2000	2001	2002	2003	2004	2005	2006	2007
	72%	78%	82%	80%	81%	84%	84%	86%

Replacement =Demand Upside

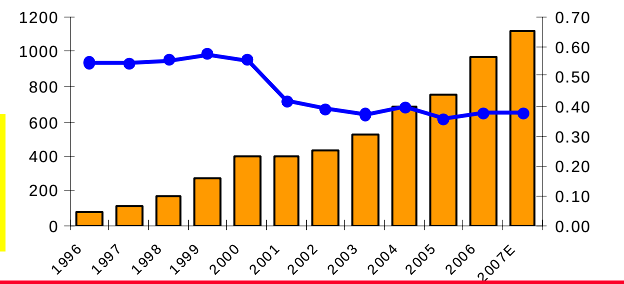
Emerging markets now 54% of '07E units



Replacement has not yet accelerated

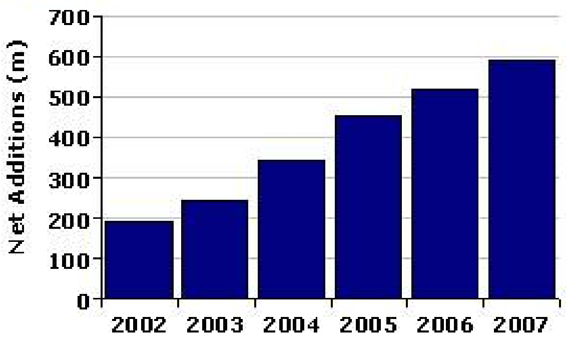
Still globally around 2.5 years

Figure 1: Handset Unit per Subscriber



China, India running at 6m monthly net adds

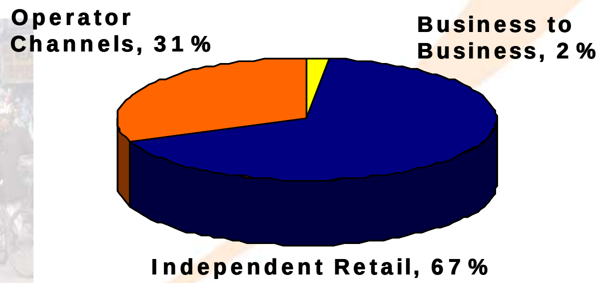
Figure 2:



Source: Arete Research

Emerging markets consumers are aspirational: compelling reason to upgrade beyond cost drive mid-range

MOTOFONE was too simple vs. Nokia LCHs (Colour, S40 @ <$50)

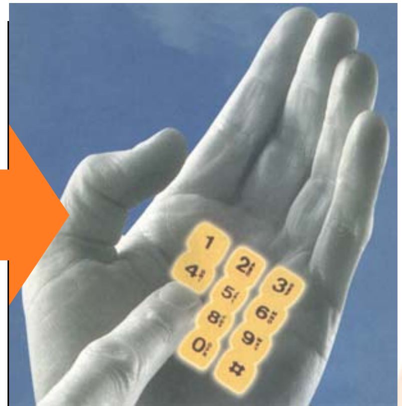


Emerging markets also less operator-dominated channels

Phones Simply Better

Figure 3: Smartphones: From Geek to Chic

Source: Arete Research



Up in the Air

March '96

- iPhone hype **benefits entire industry**; rivals lining up raft of comparable products (mostly at cheaper price points)
- **Many potential mobile data drivers push device sales**: music, consumer e-mail, video/mobile TV, browsing, etc.

Industry has a huge relevance issue w/ consumers beyond voice (i.e. 3G?) Devices alone will not solve this

arete

Handset Costs Already Falling

OEM Bottom Up Cost Base, '06E

	3G High-End	3G Low-End	EDGE High-End	2G ULC
BOM	**141**	**62**	**77.5**	**13**
Modem (B'band, RF, Codecs, PM)	26	20	13	6
Screen, Camera, AP, Memory	70	27	40	2
Connectors, Discretes	10	6	6.5	2
Mechanics (Battery, Mould., PCBs)	15	5	8	2
Software BOM	20	4	10	1
Other Variable Costs	**76**	**44**	**30**	**12**
Packaging, Charger, In-Box Access.	4	2	3	1
Manuf., Assembly	6	4	3	1.5
IOT, Test, Validation	5	4	3	1
Dist., Shipping, Logistics	6	6	6	4
Channel Support, Repair, Warranty	10	6	5	2
IPR/Royalty Costs	40	20	7	1
Product Design, Creation, Custom.	5	2	3	1
Total COGS	**$217**	**$106**	**$108**	**$25**
Vendor Gross Margin	**35%**	**25%**	**35%**	**25%**
Total Wholesale ASP	**$292**	**$133**	**$145**	**$31**

- **Chipset roadmaps the dominant source of GSM handset cost reduction over past 10 yrs.**
- **WCDMA costs are falling faster than GSM. Single-chip 3G in 2-3yrs?**
- **EDGE smartphone vs. low-cost 3G?**
- **IP costs (royalties) and multimedia mean 3G always more expensive.**

"Other" costs are not vastly different:
Mechanicals, moulding, displays, batteries
Distribution, warranty, design, overheads

Assessing The Value Chain

Semis	EBIT %
Qualcomm	30%
Texas Instruments	c. 20%
freescale semiconductor	LOSS
Infineon technologies	LOSS

Need at least $2.5bn of sales to cover min. R&D requirements.

Only 3 chipmakers shipped over 100m units in '06. M&A has begun.

OEMs	EBIT %
Nokia	19%
Motorola	LOSS
Sony Ericsson	12%
Samsung	11%
LG	9%

Top 5 =86% share. After LG, only RIM & HTC make money.

Jury out on Sagem, Japanese OEMs and Taiwanese ODMs surviving. See BenQ!

Operators	EBIT %
vodafone	18%
O_2	12%
bharti	26%
orange	9%
cingular wireless	12%

EBITDA (cash) margins are far higher (25%-50%+). Operators are cash machines

Non-SMS data revs rarely over 7% of sales, but rising.

Supply Chain: Devils in the Detail

Handset OEMs have the most complex supply chains and the highest volumes of any end-market

NOKIA

100bn components per year	100 different platforms	6,000 product variants
2-3 week firm order backlog	Negative net working capital	8m handsets shipped per week

- Product cycles 6-12 months
- Operator customisations
- Inventory channel checks
- High delivery accuracy
- High in-house yields, low FFR

OEMs that could not manage this complexity shifted the problem via outsourcing. Has it worked?

Motorola just put supply-chain head in charge of devices. They have new platform strategy, but will struggle until 2H08 at earliest

Outside of Nokia no one makes money in the low-end

Mobile Data: Now or Never

Device with highest dataplan attach rate not even 3G, but EDGE!

But it only has 8m subs!

Non-SMS data revenues rarely over 5% of sales, but rising.

World's largest operator China Mobile going EDGE; avoids near-term issues around 3G licensing,.

India 3G 100% spectrum-led!

2007/08 should finally bring "convergence" business models

- ***iPhone + iTunes cuts out operator***
- ***WiFi/VOIP Google-fone by ODMs?***
- ***Nokia acquires YHOO?***
- ***Microsoft-Motorola JV/partnership?***

There are plenty of services around to drive 3G/data usage

Mega-markets not yet mobile:

- *8bn **searches** in the US alone last month, up 30% yoy.*
- *1bn **consumer email** boxes globally <1% are mobilised.*
- *YouTube claims 2bn viewings/day.*
- *Over 1bn **IM** user, despite no IOT.*
- *Google collecting millions of mobile numbers. What for? Push g-mail?*

Operators starting to bite the bullet on flat rate dataplans.

The next set of issues

- **Consumer smartphones** – “open O/S” for all? Nokia cant yet say whether S40 up, or S60 down
- **3G IPR** – snake in the grass.
- Internet **Service Delivery Platforms** – iTunes?
- Chipset Battles – lots of casualties to come
- **Attach rates** for new features – GPS, WiFi, BT A2DP?
- What stops operators moving to **flat-rate data**?
- **USB modems** – inflection point? Makes a lot of handset applications obsolete?
- Developing for **next-generation displays** (3D)

Q&A

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