Wireless Data Services

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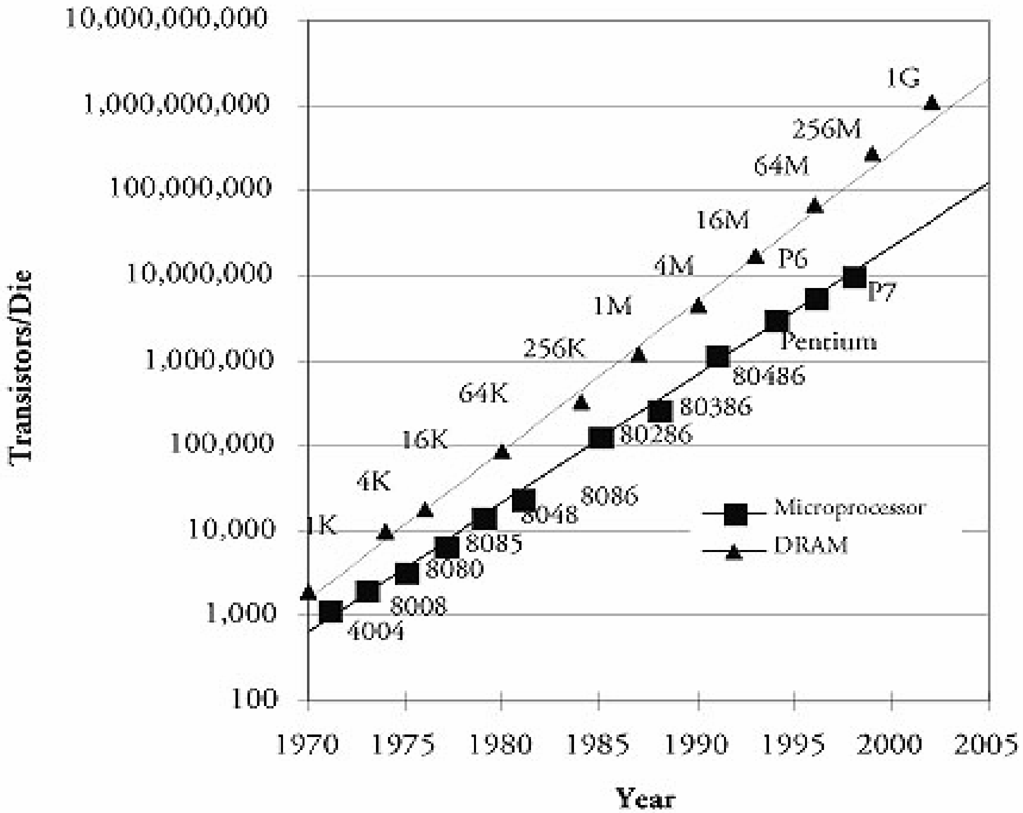
Overview

- The mobile phone
  - . . . Where it is today
  - . . . Where it is going
  - . . . Modelling the opportunity
- Background - product adoption lifecycle
- Applying this to Wireless Data Services
- Example services
- Conclusion

Phone Evolution

Digital Revolution

Smaller, Faster, Better, Cheaper

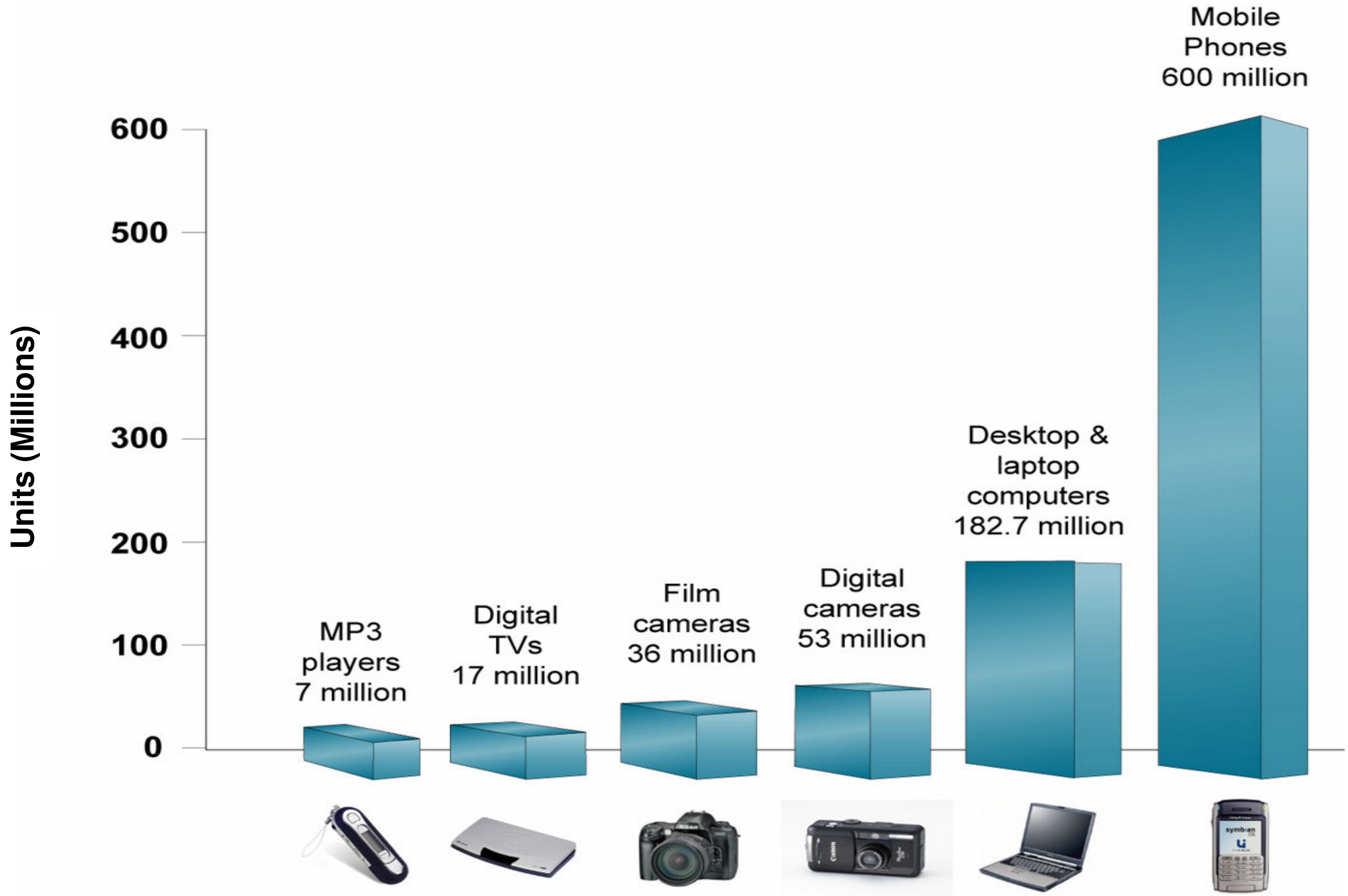


From this...

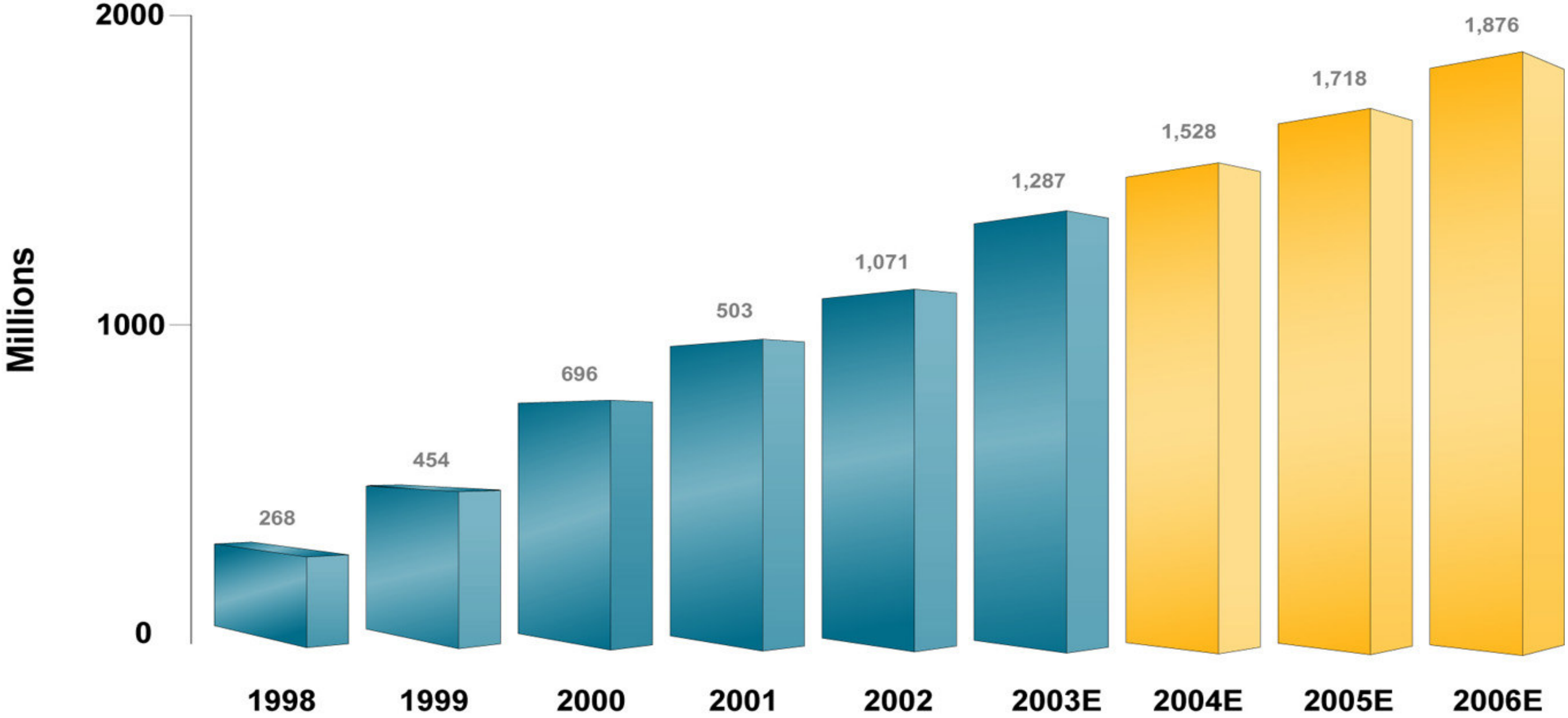
to this...

…in twenty years...

Consumer electronics device sales 2004

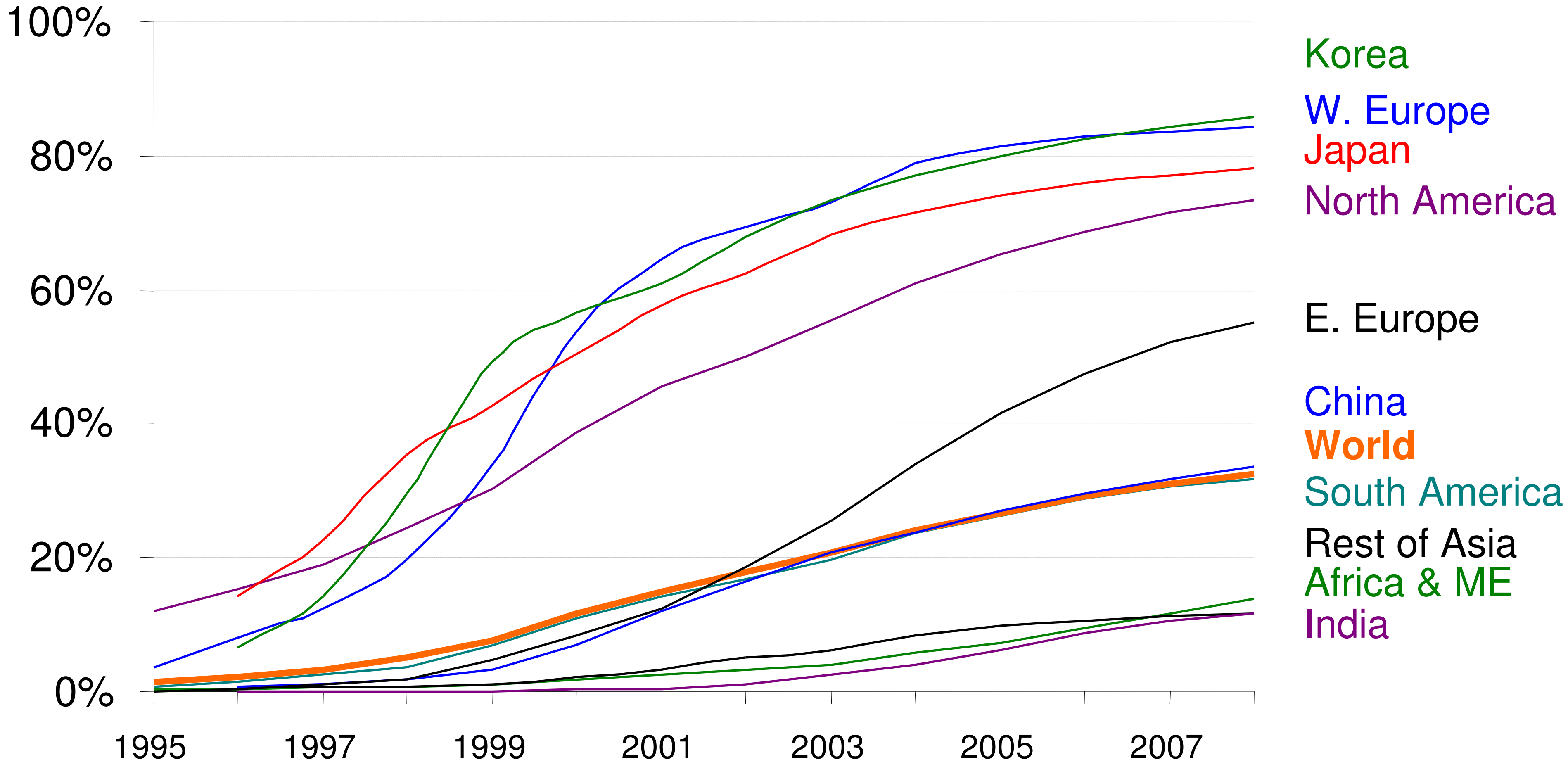


Worldwide mobile phone subscribers



Source: Merrill Lynch global wireless matrix

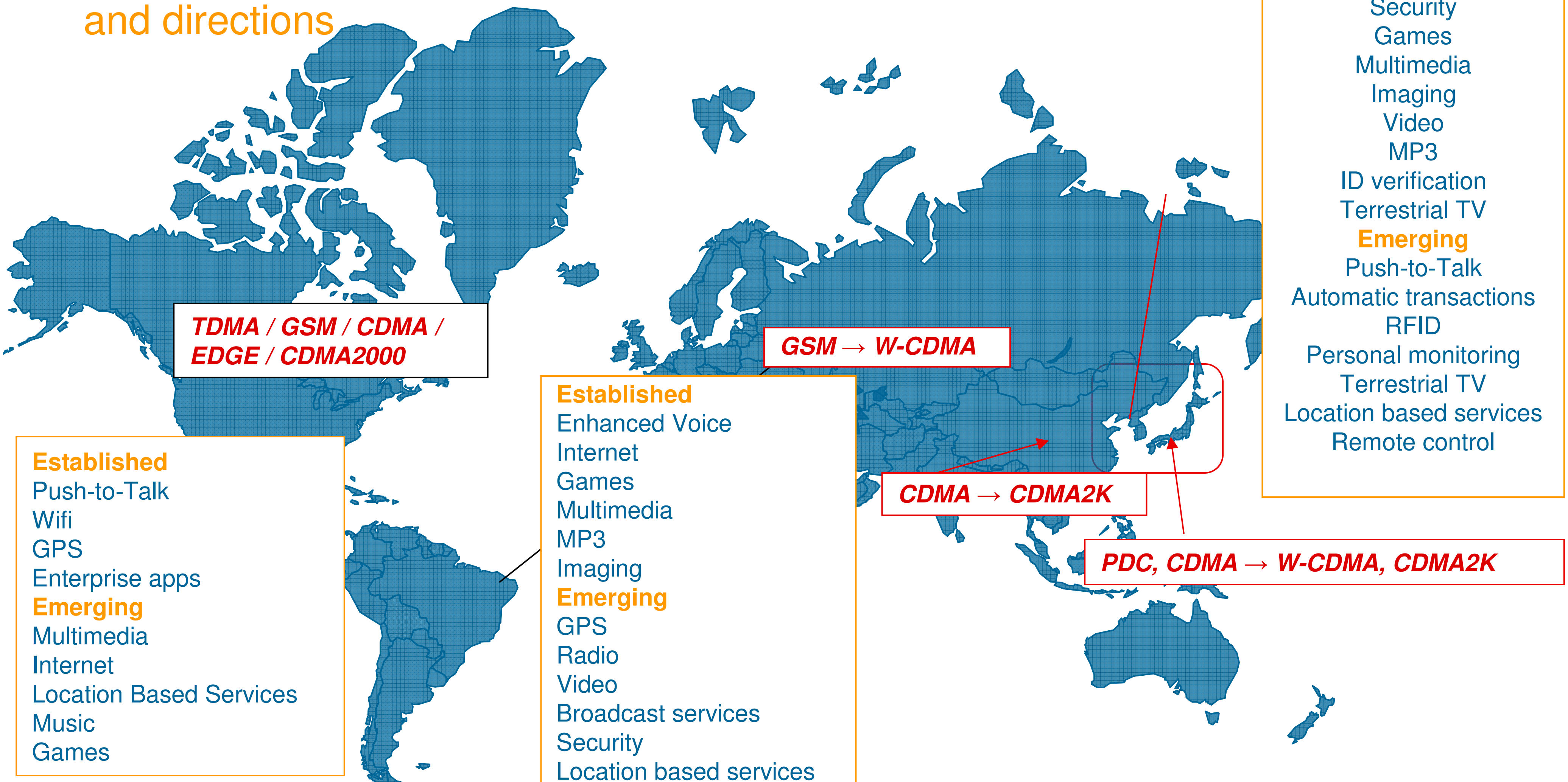
Mobile phone penetration by country



Source: Symbian market model, Feb 2004

Enabling smartphone evolution

Different markets have different evolutionary speeds and directions



The mobile phone today

- 3 Broad technologies
  - ...GSM (Europe, Asia, Africa, some USA)
  - ...CDMA (USA, Asia)
  - ...W-CDMA, (evolution of GSM)
- Transition from voice phone to data phone
  - ...Data added to voice services
  - ...Priced by usage rather than connection time
  - ...Stepping stone to 3G
    - … but what do people what to do with 3G
    - … will it turn out like the Internet?

Economics

- In Europe Licenses sold by auction
  - ...Total cost of approx $100Bn
  - ...+ Roll-out cost of $150Bn
- Funded by about 50% of the bond market from 1998-2002
- Total investment significant proportion of UK GDP
- Payback over 20 years
  - ...Approx 2008 with substantial data take up
  - ...Approx 2011 without

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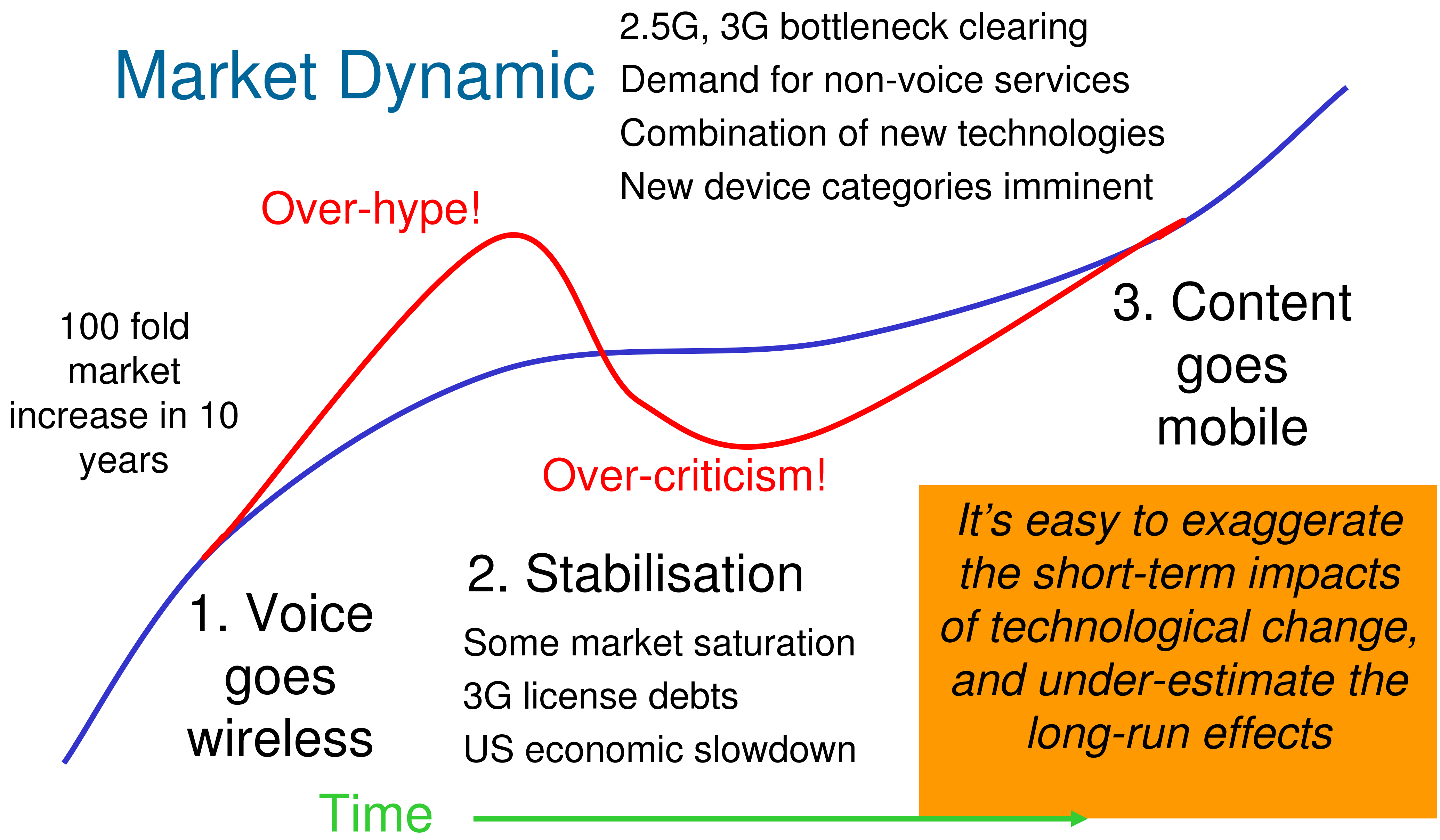
Market Dynamic

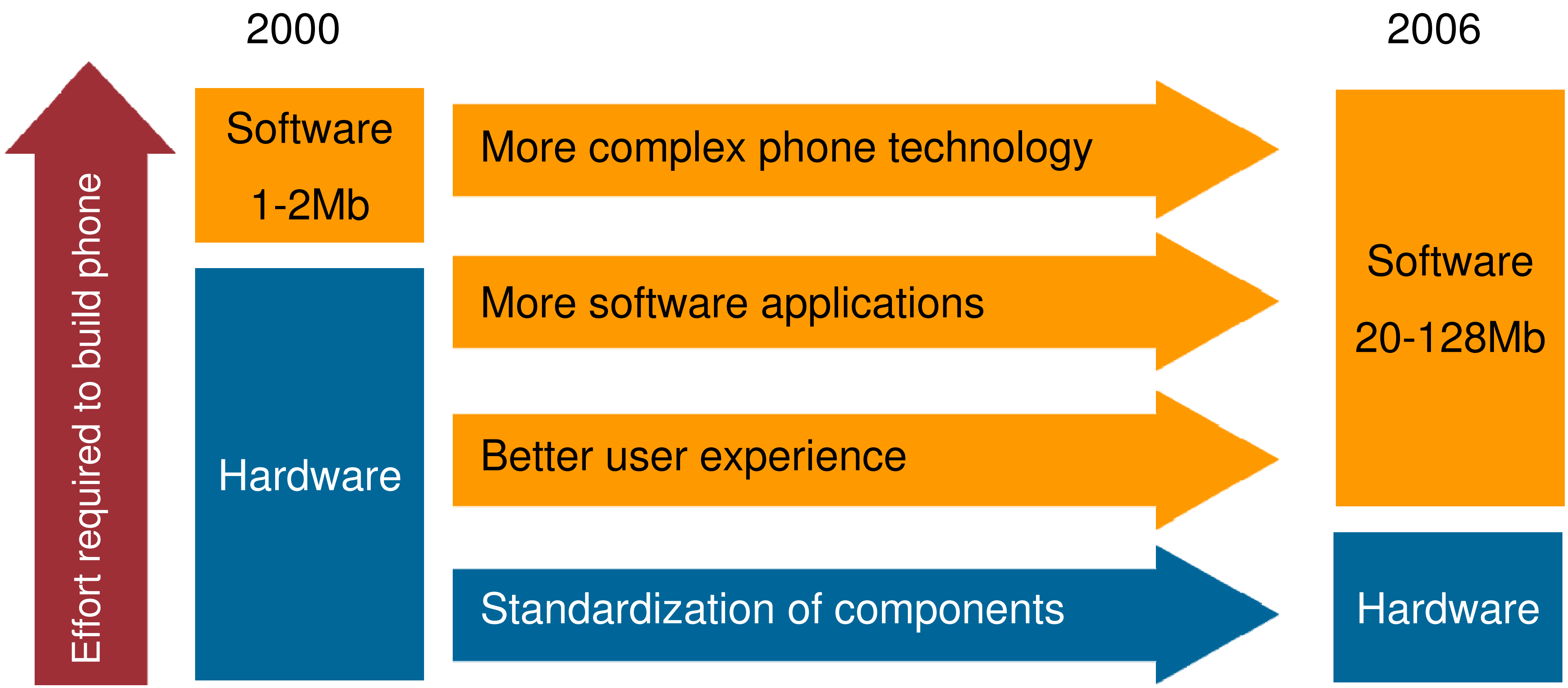


It's easy to exaggerate the short-term impacts of technological change, and under-estimate the long-run effects

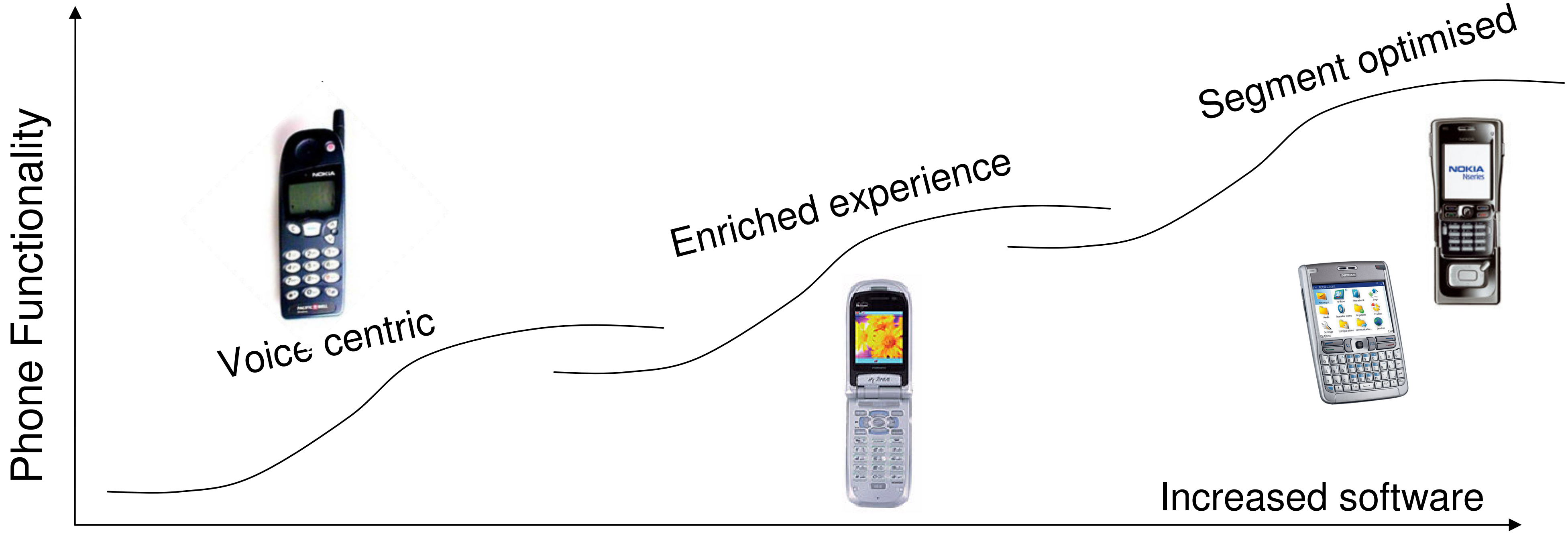
Expectations; Reality

The mobile phone device

Why do you need an OS?
Phone software is increasingly valuable



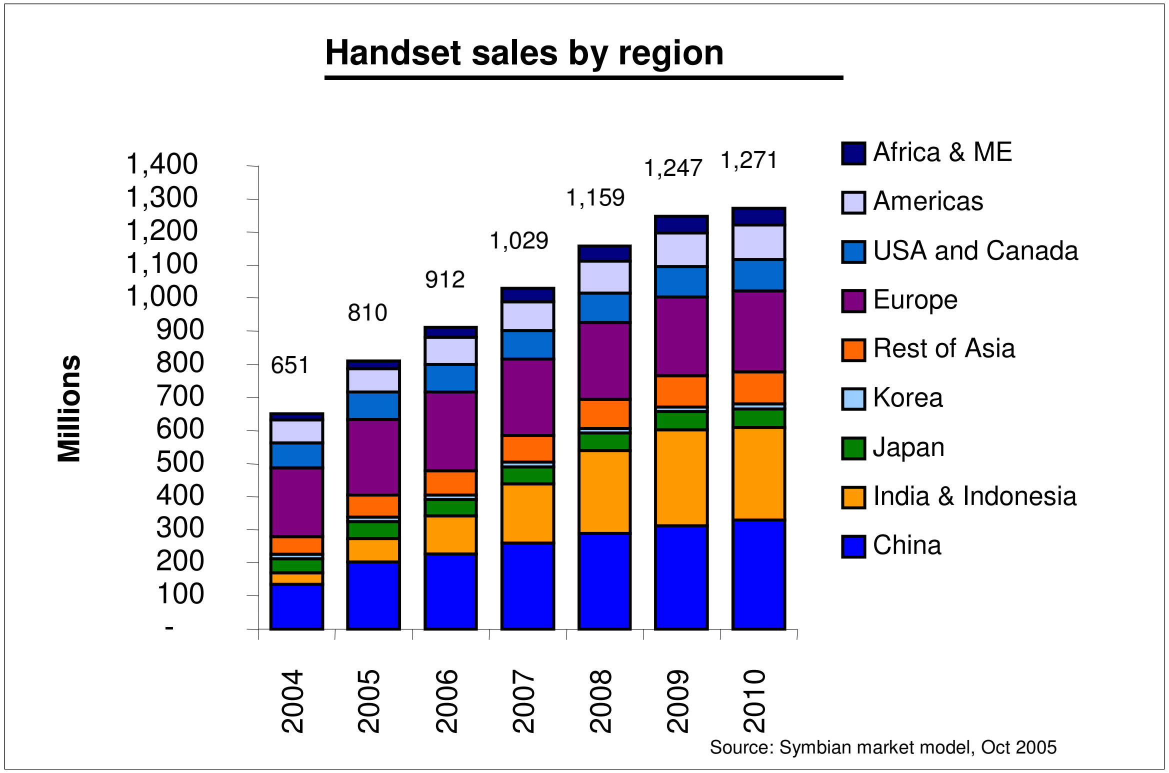
Evolving the phone with software



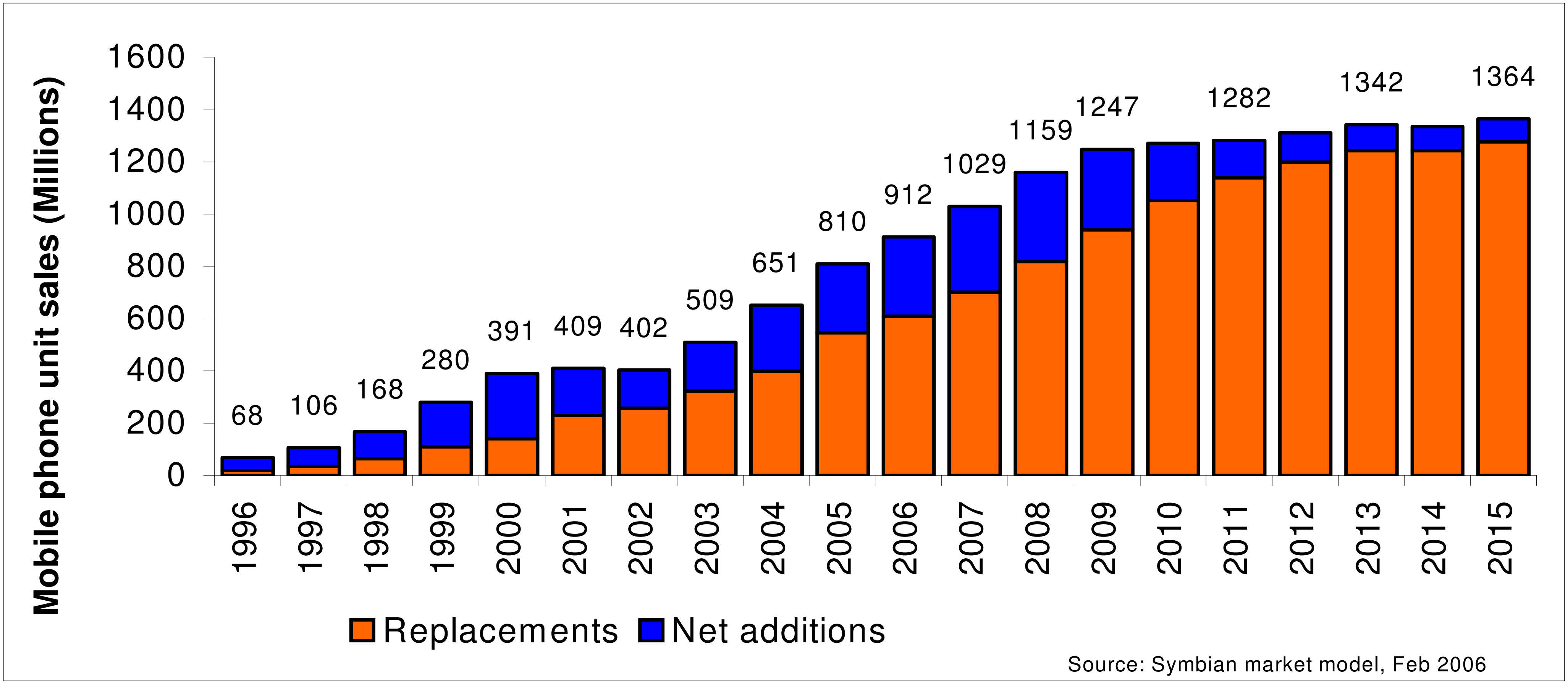
Differen-tiators	**Portability** Size, weight, battery life	**Features** Display, memory, camera	**Fit-for-purpose** Applications, brand, form factor, end-to-end solutions
Phone vision	Fundamentally, smartphones will increasingly develop like consumer electronic appliances		

Projected handset sales

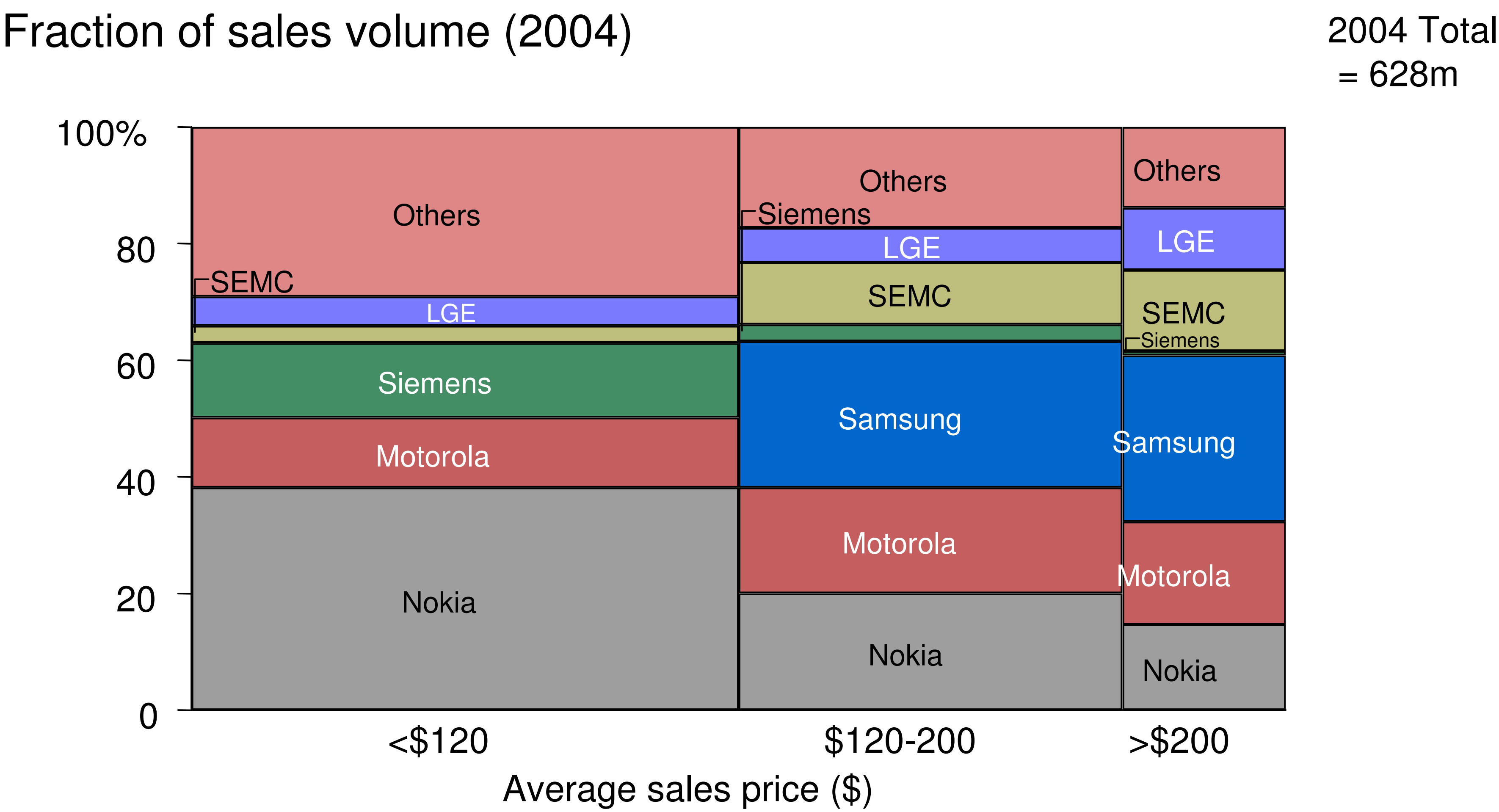
- Growth coming from emerging markets in Asia
- Growing 3G substitution assumed in Europe



Replacements form the bulk of total sales

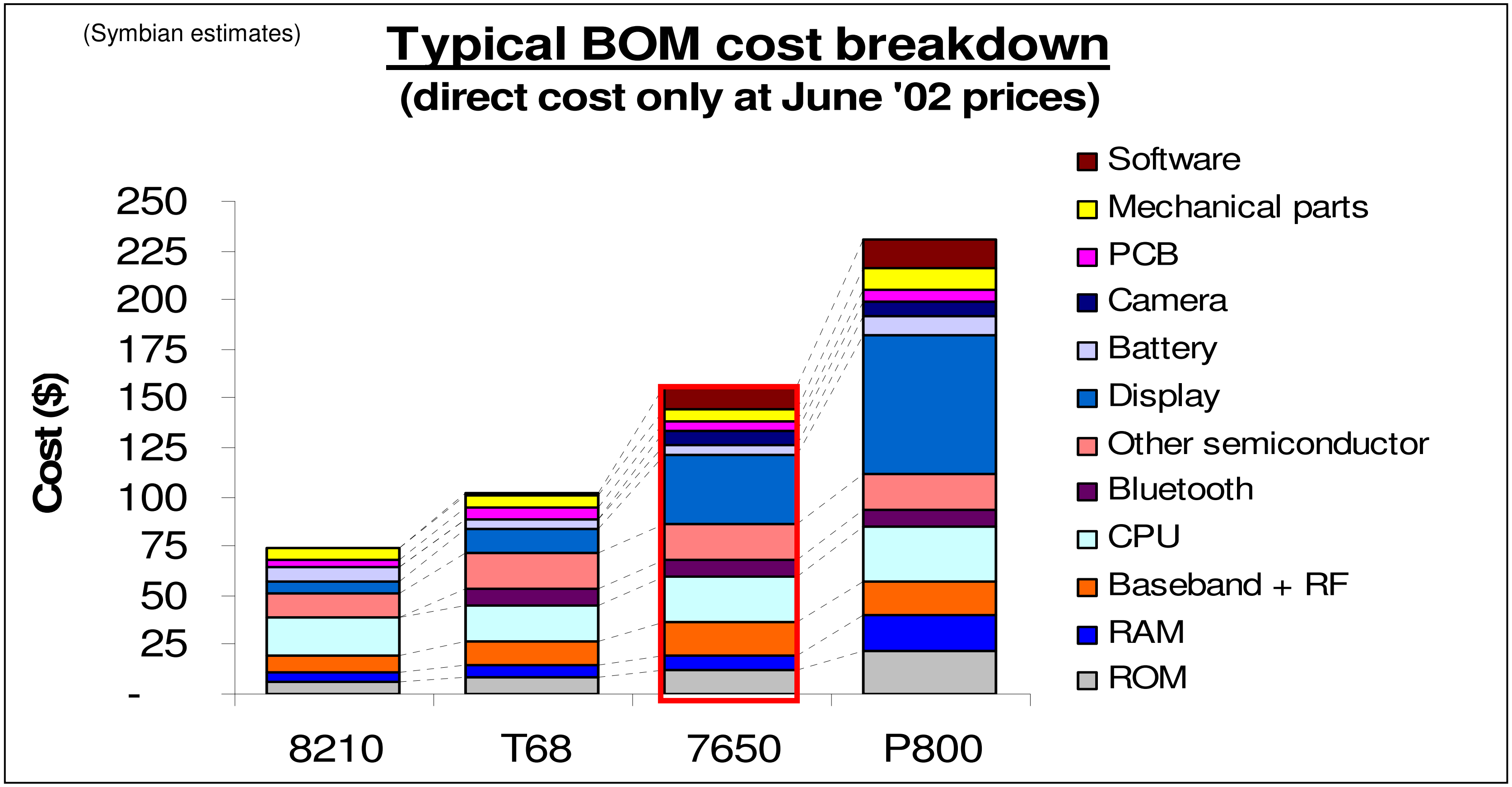


In the hands of a small number of players



Source: Dresdner Kleinwort Wasserstein estimates, 21 April 2005

Modelling a consumer electronics device



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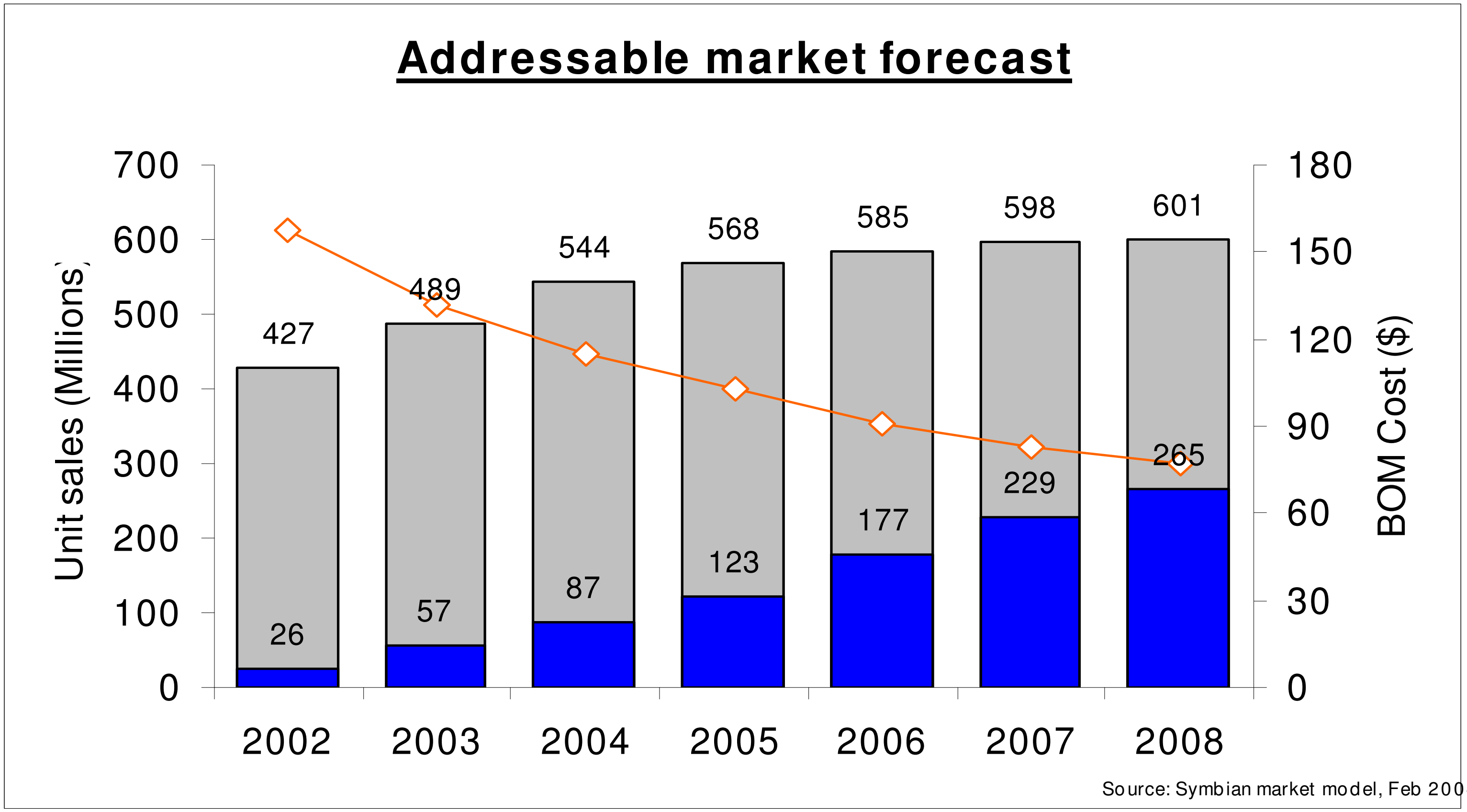
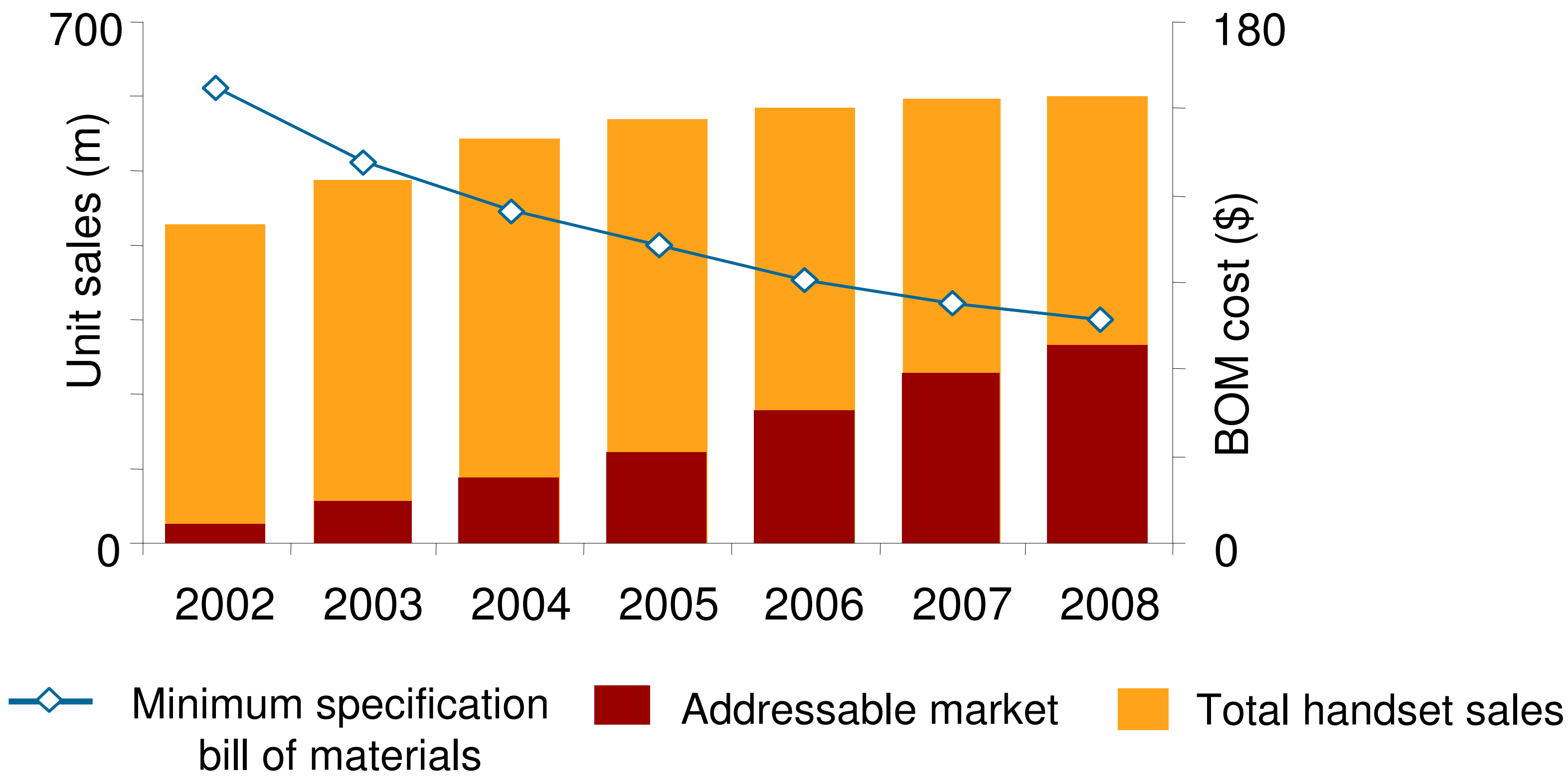
Sizing the smartphone market



Source: Symbian market model, Feb 2004

Estimating volumes from price information



What this tells us

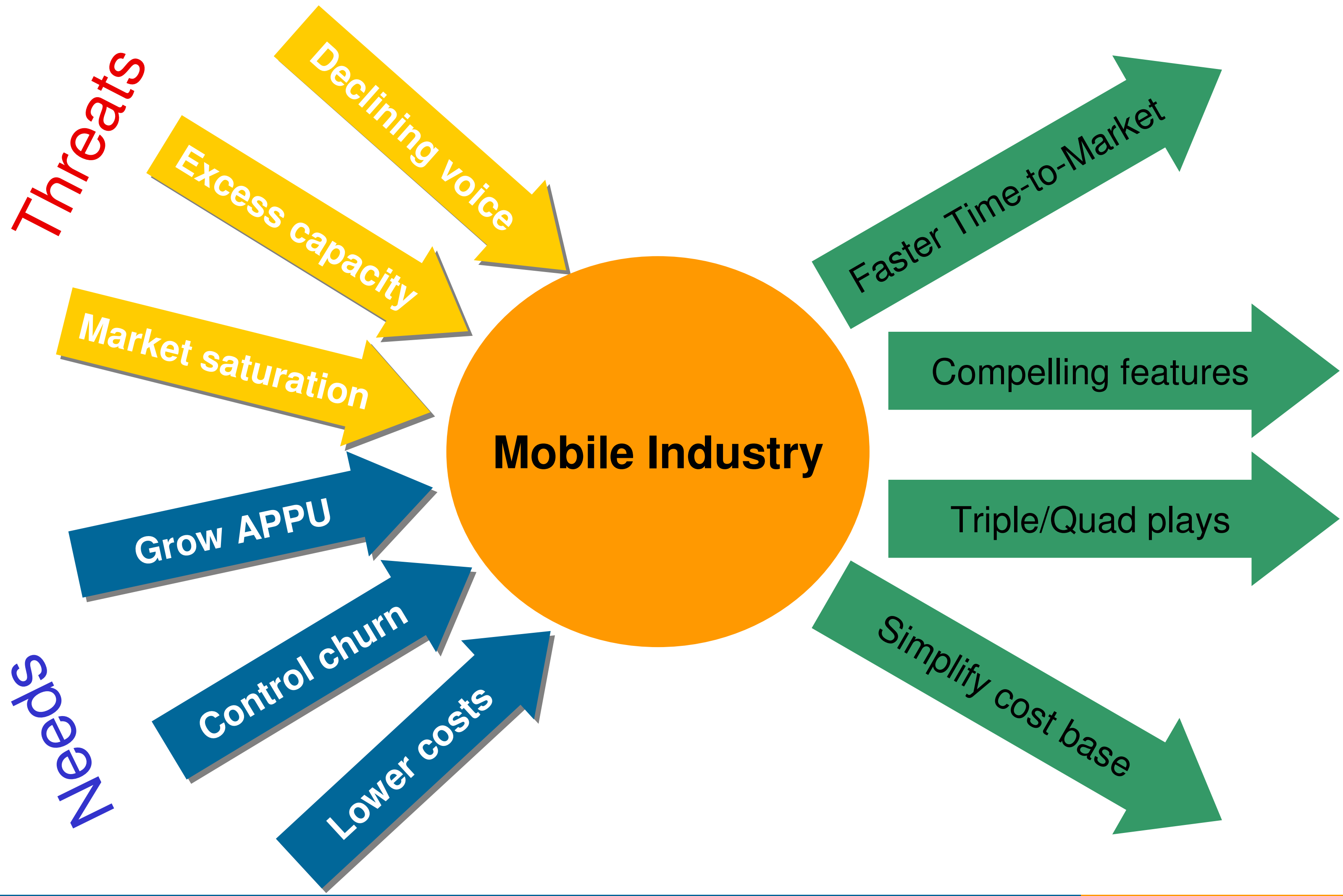
- Mobile phone is mass-market
  - …One for every 5 humans on the planet
  - …One in 2 by end of decade
  - …Market won't tolerate user complexity
- Its personal, not family oriented
  - …(unlike PC, TV)
  - …Opportunity
- Attractive to emerging economies
  - …Limited existing fixed line infrastructure
  - …China, India set to become mass markets

The future

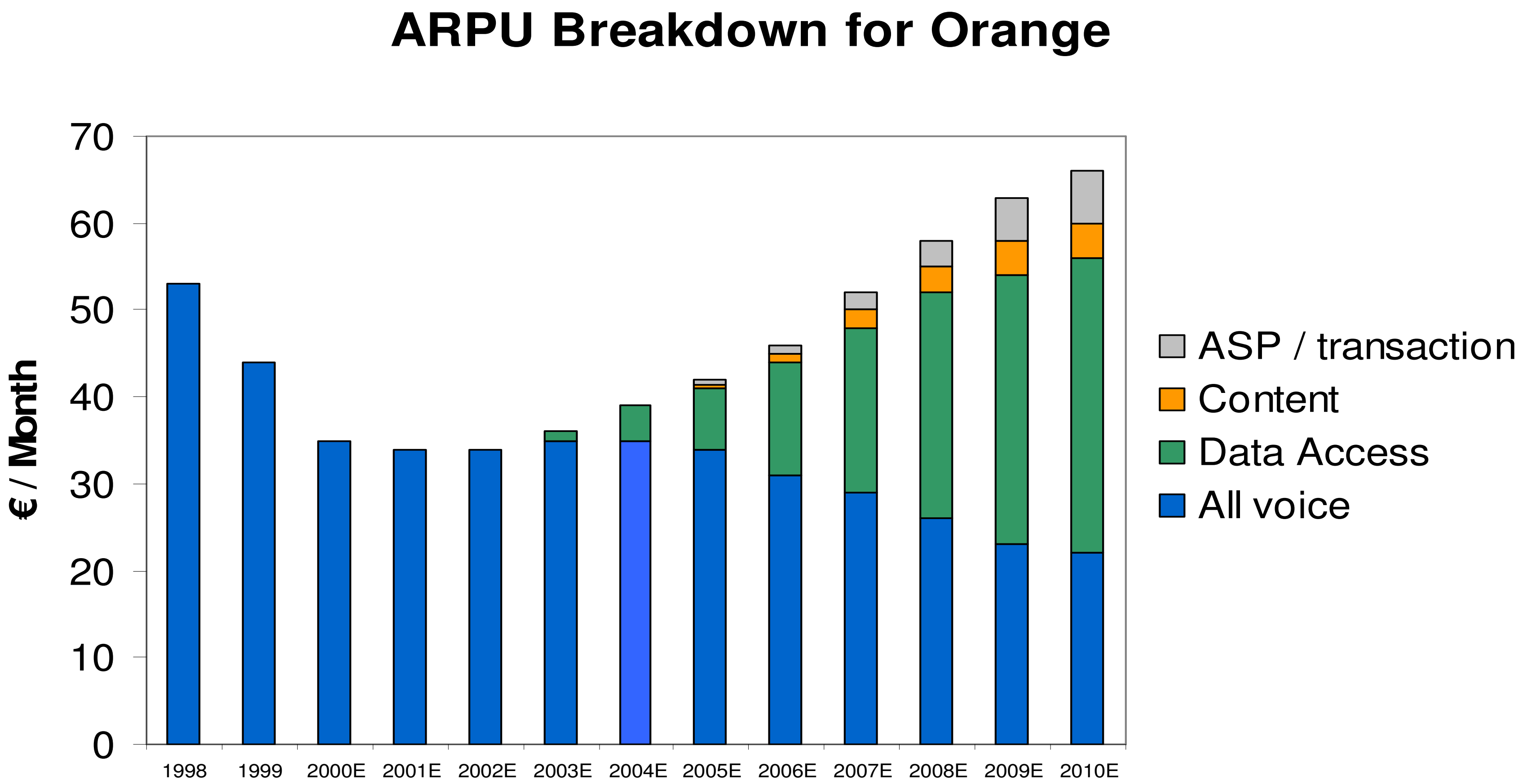
- Move to full IP backbone
- 3G
  - ...Higher bandwidth
  - ...Simultaneous voice and data
  - ...IPv6
- 4G
  - ...Adds local wireless (integrated telco and wireless)
  - ...VoIP
  - ...IEE 802.11 (Wireless LAN), Bluetooth
  - ...Short range, high bandwidth, low cost potential

Product adoption lifecycle

Industry business concerns

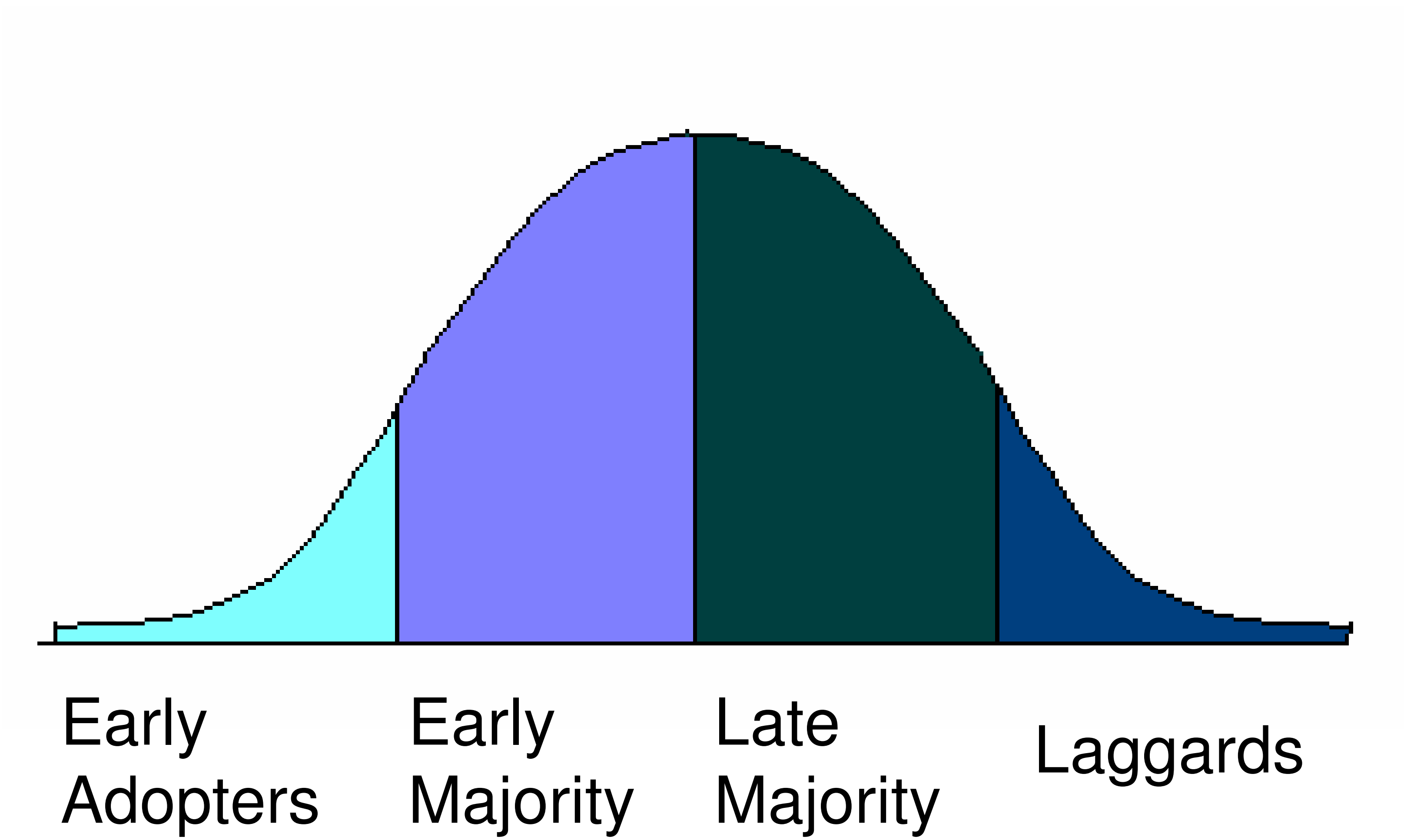


Operators seeking future revenue from mobile data



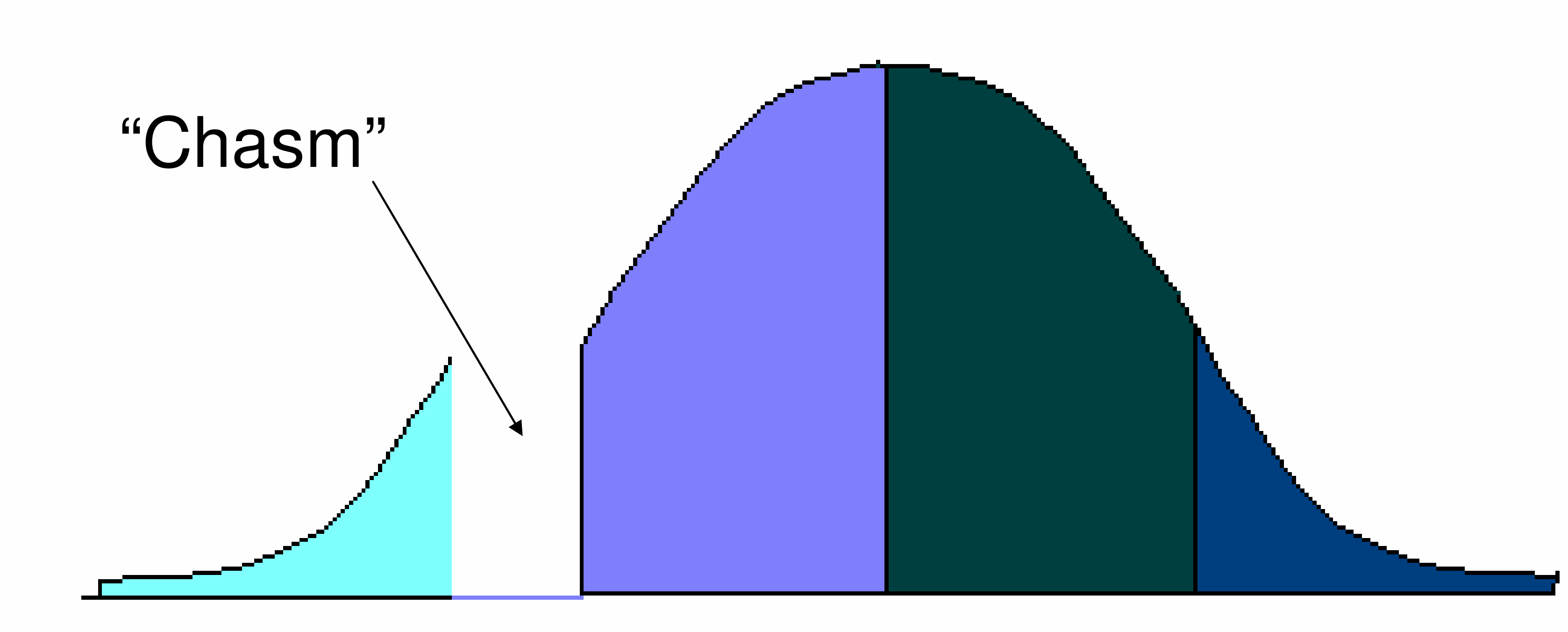
Source: DKWR – Corporate information

Product lifecycle



High Tech adoption lifecycle

- After Geoffrey Moore “Crossing the Chasm”
- Requires “Whole Product Offering”



Services overview

The services

- Voice
- Messaging
- Browsing
- Multimedia
- m-commerce
- games
- applications (delivered over the air)
- location-based services
- Corporate/enterprise

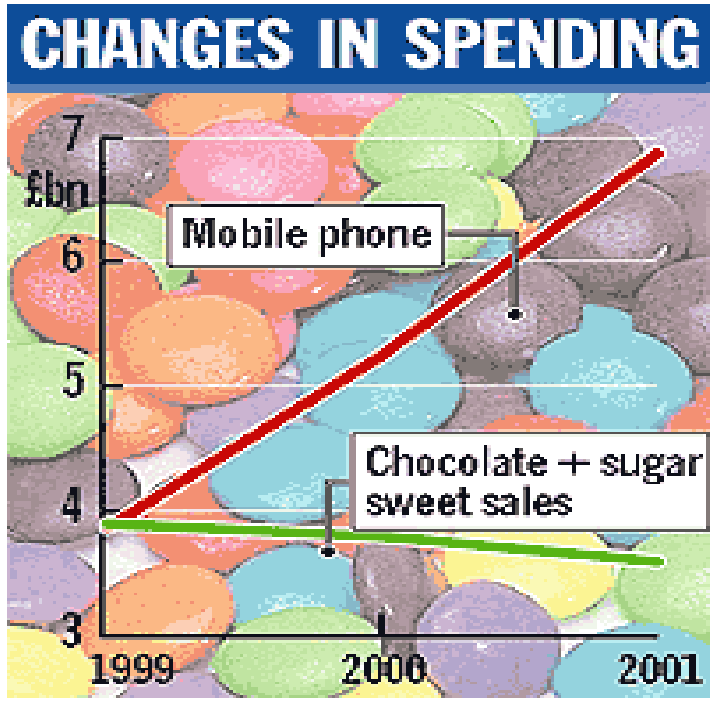
Requirements

- 3 Classes of service
  - ...Vertical
  - ...Publish/subscribe
  - ...Peer to peer
- "Whole product" is critical
  - ..."Value chain" (who gets what revenue)
  - ..."Delivery chain" (who delivers what)
  - ...End user enchantment (cf WAP experience)

Example - Multimedia Messaging

- Peer-to-peer
- “SMS with pictures and sounds”
- Whole product?
  ...Value chain
  ...Delivery chain
    - Composer on the phone
    - Needs a community
  ...Enchanting experience
- How to roll out
  ...Viral marketing
  ...Trojan horse/market power

Changing behaviour and business models in adjacent markets



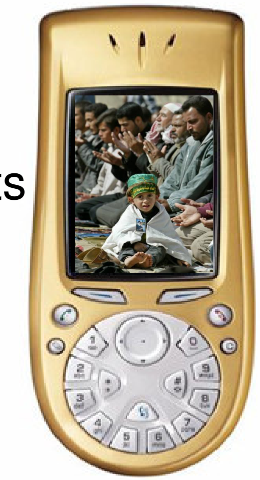
Impact on Imaging

Ever present, Always Connected

- Creating new usage models and new experiences
  - … Life Diaries
  - … Video Chat
  - … Interactive content
  - … Remote monitoring
  - … Onboard photo editing
  - … Personalisation
  - … Remote printing
- New Business Models and New winners

Increasing Accessibility

New Sources of Images: Changing the production of Images



e.g. BBC & Cameraphones

- 2003: BBC issues 40 2.5G Symbian OS phones to BBC journalists for fast on-the-scene video capture
- 2004: 3G phones being rolled out to reporters
- Other broadcasters now running similar experiments
  - Fox News, Reuters

More Accessible Content:

e.g. Mobile TV

- Mobile operators offering Mobile TV services on Symbian OS phones
  - Including: TIM, Telefonica, ATT Wireless

Music and Mobility

Market Momentum

- **The worldwide ringtone market:**
  - **$3.5 billion in 2003, up 40% from 2002**
  - **Representing about 10% of the global music market**
  - **Forecast global sales > $5.3 billion in 2008**

  Source ARC Group
- **2007: 52% of data enabled phones will be music enabled.**
  Source: Strategy Analytics
- **The under-25 age group in the UK spends five times as much on mobile phone calls, texts and content as on traditional music formats**
  Source: mobileYouth

Next generation iPod?

- Onboard Storage in increasing e.g. 4Gbyte phone from Samsung
- Integrated Application Architecture, allowing users to do more with music

New Industry Players

- New record labels – Operators..?
- New distributors - Coca Cola, Sony, MSN, Tiscali, Wanadoo, HMV, Virgin, Woolworths, Wal-Mart, Carphone Warehouse, artists direct to customer
- E.g. Carphone Warehouse, European Retailer becomes Content Distributor
  - Robbie Williams album sold on memory card in phone retailer

Emerging services

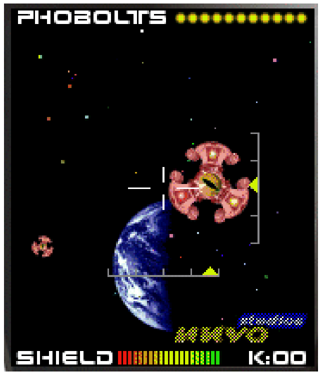
- Multimedia Services
  - TV – DVB-H, DMB
  - Music
- Convergence Services
  - Operators looking at fixed and & mobile assets
  - Infrastructure, service and device convergence
  - Dual-Mode devices shipped will increase rapidly over the next 3 years, reaching 26.8 million by 2009 (Yankee)
    - BT Fusion
    - Orange/FT NExT strategy
    - Telecom Italia, T-Online/T-Com…

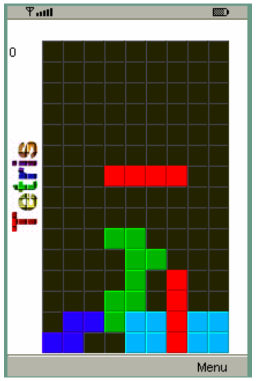
Sky Mobile – Content on mobile

- Client-server solution to integrate TV with additional services
  - … Performance
  - … Functionality (vs browser)
  - … Phone Integration
- Shows how content providers will use Smartphones as a delivery channel
- Early example of major content going mobile

Games - consumer applications driver

- Growth market
- Channels are in place
- Very profitable use of data





High performance games

New Service Paradigms

Virtual Identity

Mood

Generic & Custom Messages

Location

Phone Status

Conclusion

- Snapshot of mobile telecoms market
- Complex problem
  - ...Technology
  - ...Market
  - ...Economics
  - ...Social engineering
- Has the power to reshape the world
  - ...Rather like the railways
  - ...But like the railways – who will make the money?

- Questions or comments:

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