

# **GSM in Society – Delivering Sustainable Mobile Communications**

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**Budapest, 25-26 November 2004**

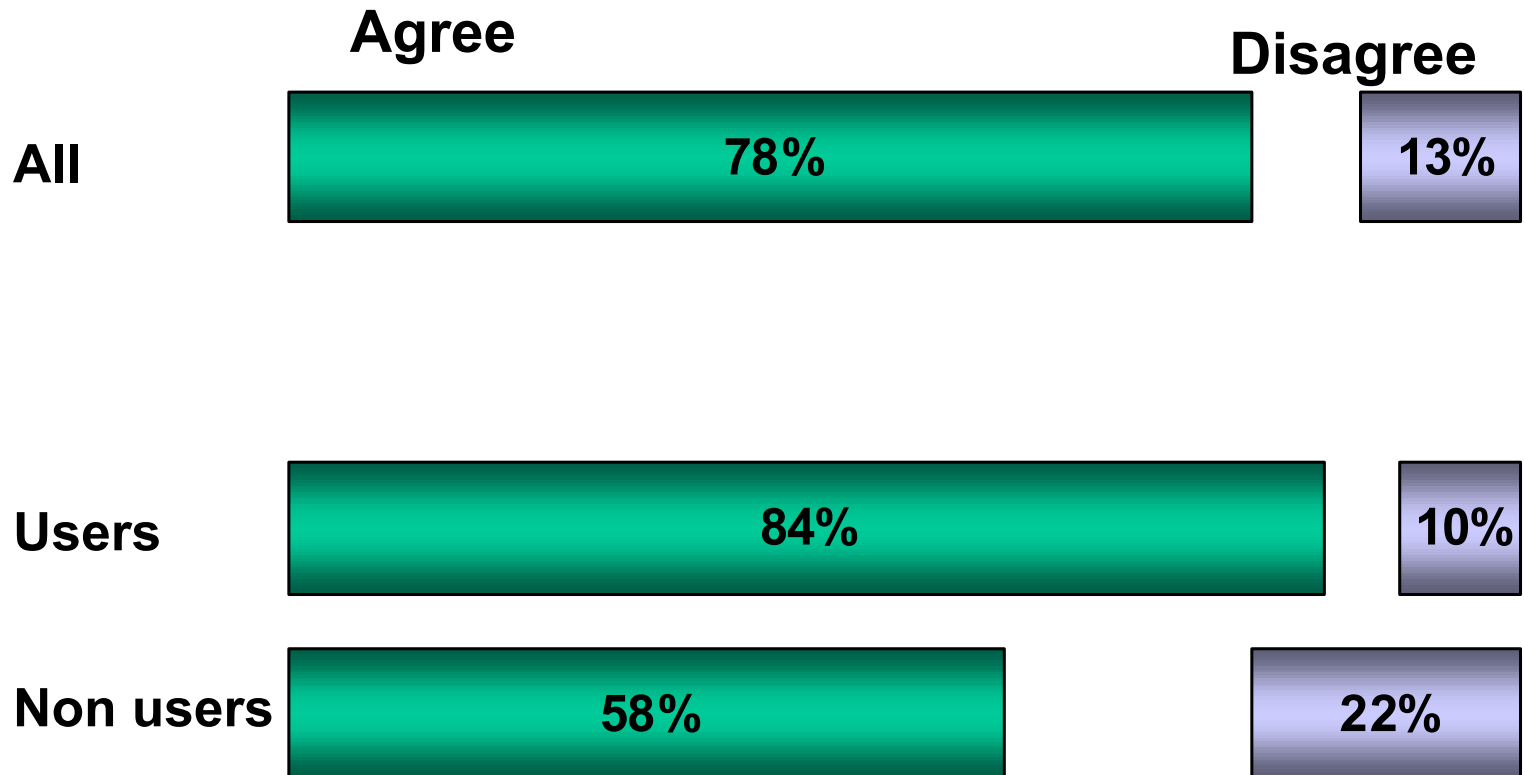


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# Necessity of Modern Life

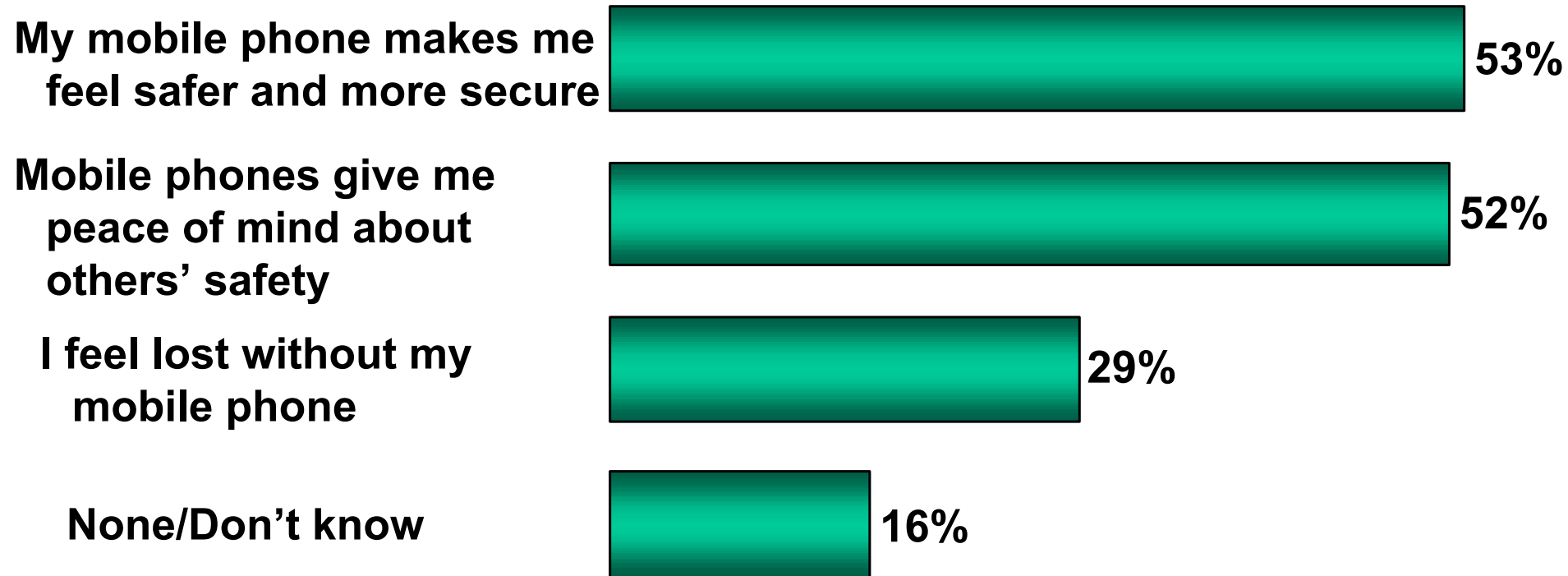
**Q** *How strongly do you agree or disagree with the following statement: Mobile phones seem to be a necessity of modern life?*



Source: MOA/MORI. Base: All GB adults aged 15+ (2,046), Users (1,496), September 2003.

# Provide feeling of security

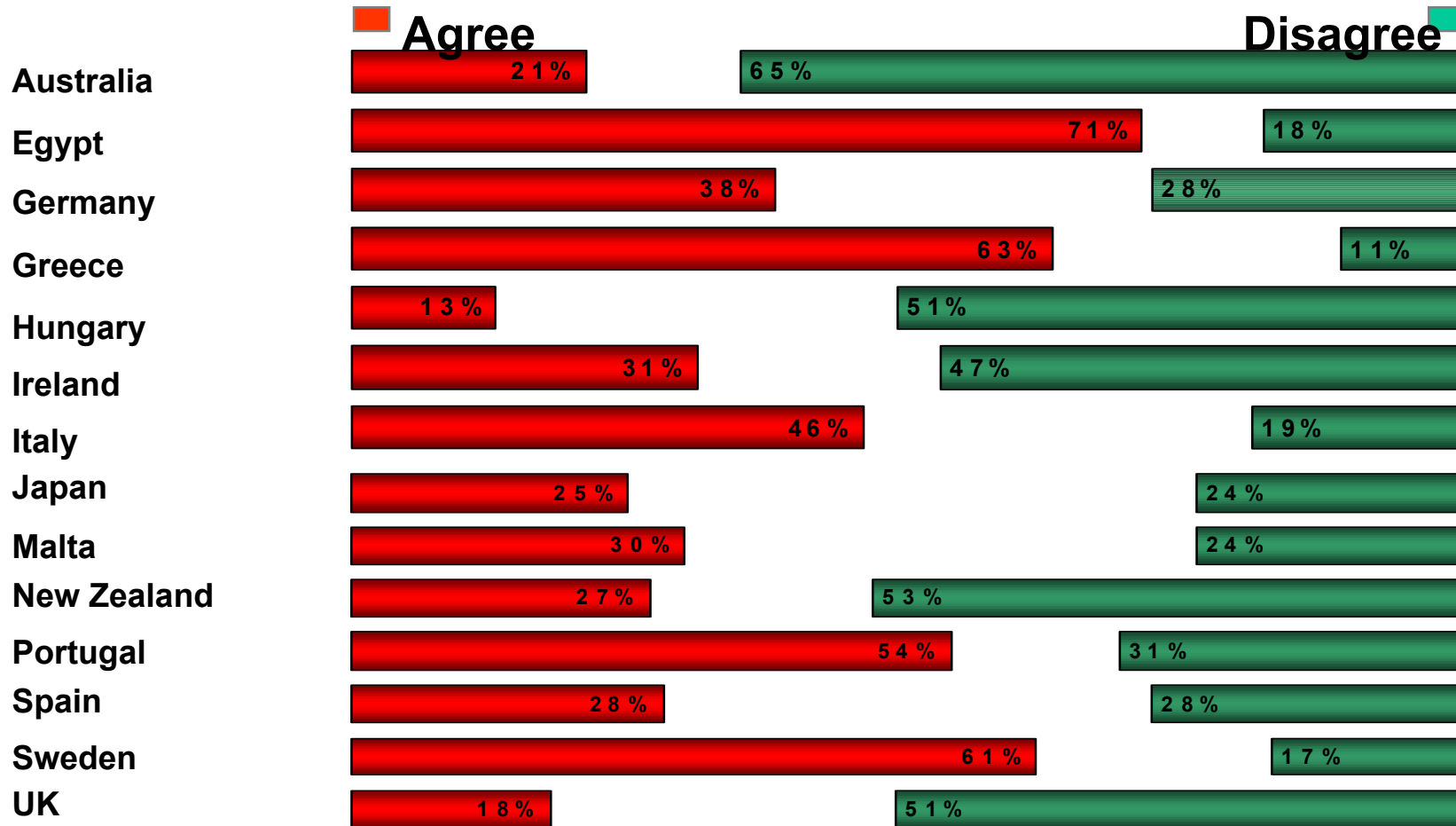
**Q** *Which of these statements on this card, if any, about mobile phones apply to you?*



Source: MMF/GSMA/MORI. Base: All mobile phone users (1,511), December 2003.

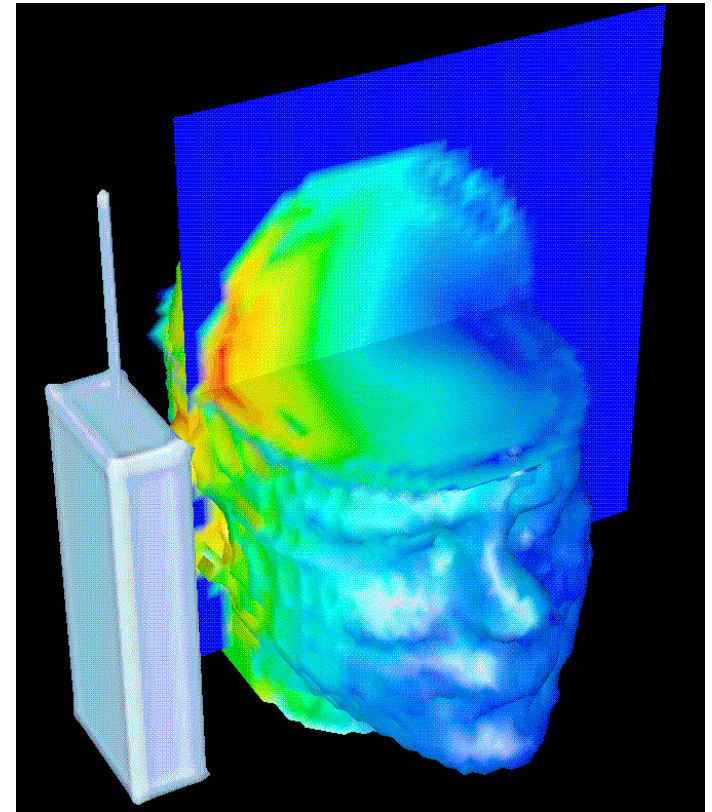
# Global perceptions of safety

**Q Please tell me how strongly you agree or disagree with the following statements: 'I do not believe that mobile phones are safe to use'**



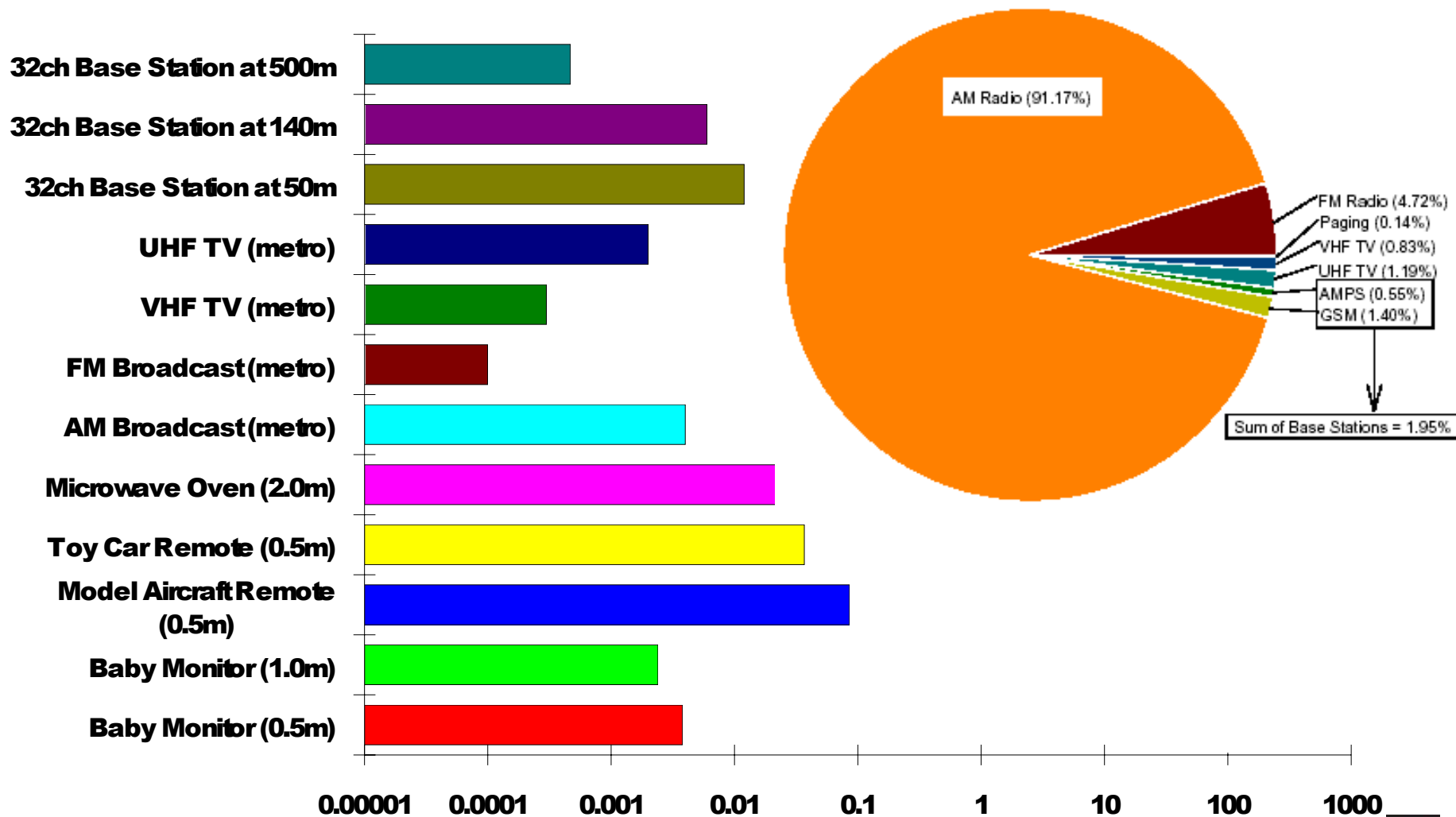
# Do mobiles cause brain cancer?

- Natural incidence is about 6 per 100,000 below age 65.
  - Statistically some users of mobile phones will develop brain cancer.
- Research:
  - 8 major animal studies.
  - 14 major epidemiological studies.
  - INTERPHONE case control study:
    - 13 countries, common protocol, longer latencies.
    - Reports published 2004 to 2006.



*‘... In our view, a consistent picture has emerged from these studies that appears to rule out, with a reasonable degree of certainty, a causal association between cellular telephones and cancer to date...’ - Swedish Radiation Protection Authority (SSI), 2002.*

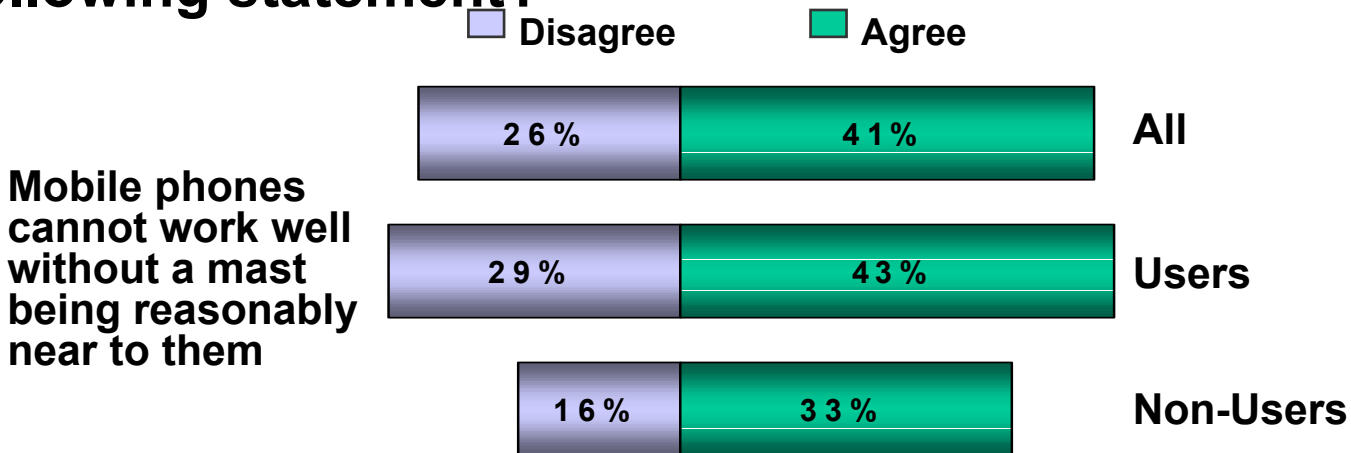
# Environmental Radio Signals



# Network deployments

- Needed for subscriber growth & 3GSM but many don't understand the need for masts.

**Q. How strongly do you agree or disagree with the following statement?**



Source: MOA/MORI. Base: All GB adults aged 15+ (2,046) September 2003.

*'Exposure levels from living near to mobile phone base stations are extremely low, and the overall evidence indicates that they are unlikely to pose a risk to health.'* – UK Advisory Group on Non-Ionising Radiation (AGNIR), January 2004

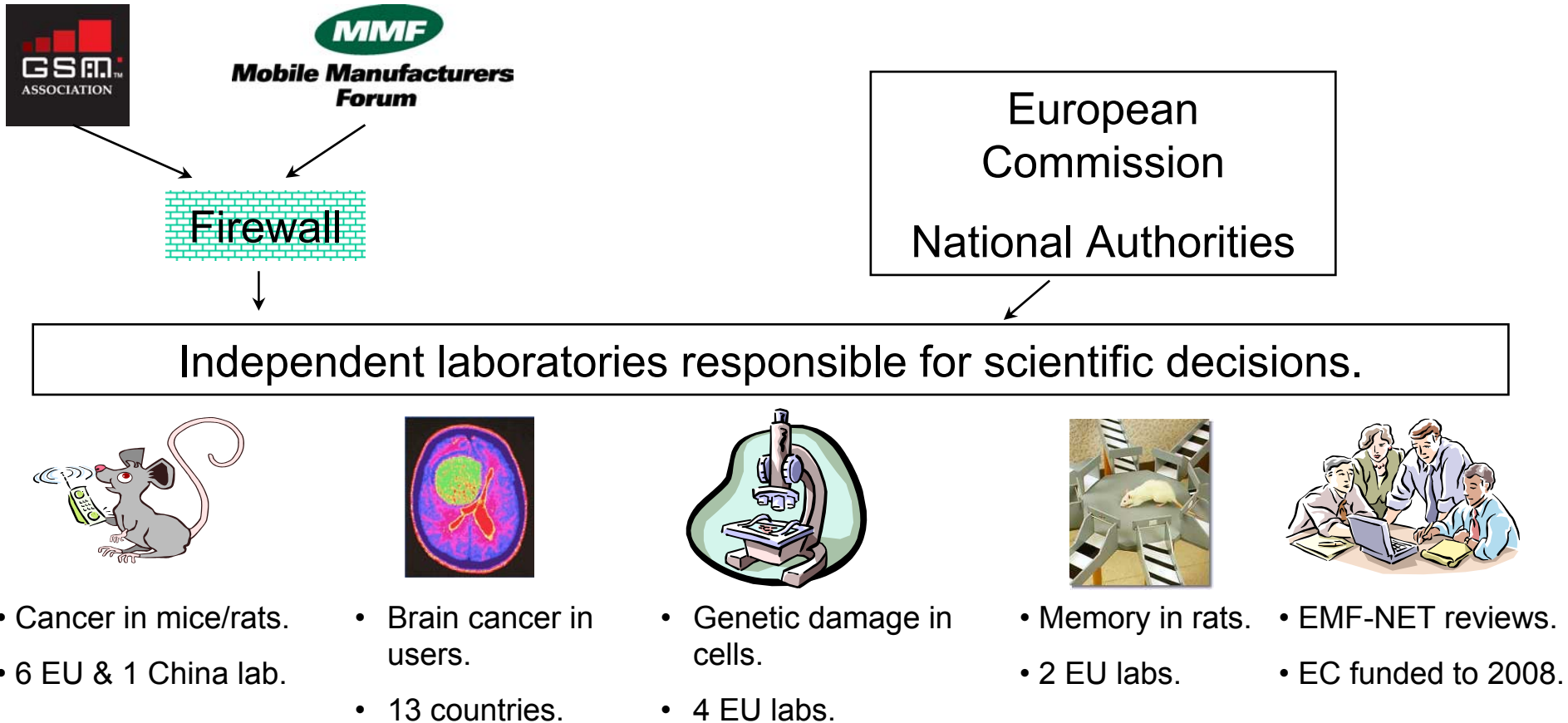
# Independent reviews

- ◆ UK National Radiological Protection Board (1993/1999)
- ◆ Royal Society of Canada (1999/2001)
- ◆ UK House of Commons Science and Technology Committee (1999)
- ◆ UK Independent Expert Group on Mobile Phones (Stewart Report - 2000)
- ◆ Health Council of the Netherlands - GSM Base Stations (2000)
- ◆ Swedish Council for Work Life Research (RALF) (2000)
- ◆ French Expert Group ('Zmirou') Report (2001)
- ◆ Malaysian Communications and Multimedia Commission (2001)
- ◆ Australian Senate Reference Committee EMR Inquiry (2001)
- ◆ USA General Accounting Office (GAO) Report (2001)
- ◆ British Medical Association (BMA) Board of Science and Education Interim Report (2001)
- ◆ Spain Campos electromagnéticos y salud pública (Comité de Expertos Independientes) (2001)
- ◆ German Commission for Radiation Protection (SSK -2001)
- ◆ European Committee on Toxicology, Ecotoxicology and the Environment (1998, 2001, 2002)
- ◆ Health Council of the Netherlands - Mobile phones (2002)
- ◆ Australian Radiation Protection and Nuclear Safety Agency (ARPANSA – 2002)
- ◆ French Parliamentary Office of the Evaluation of Scientific and Technological Choices (OPECST - 2002)
- ◆ French l'Agence Française de Sécurité Sanitaire Environnementale (AFSSE – 2003)
- ◆ Norwegian Radiation Protection Authority (2003)
- ◆ Swedish Radiation Protection authority (SSI - 2003)
- ◆ Health Council of the Netherlands – EMF Report (2004)
- ◆ UK National Radiological Protection Board AGNIR (2004)

*'Based on a recent in-depth review of the scientific literature, the WHO concluded that current evidence does not confirm the existence of any health consequences from exposure to low level electromagnetic fields. However, some gaps in knowledge about biological effects exist and need further research.'* – WHO, 2004



# GSMA Co-funded Health Studies



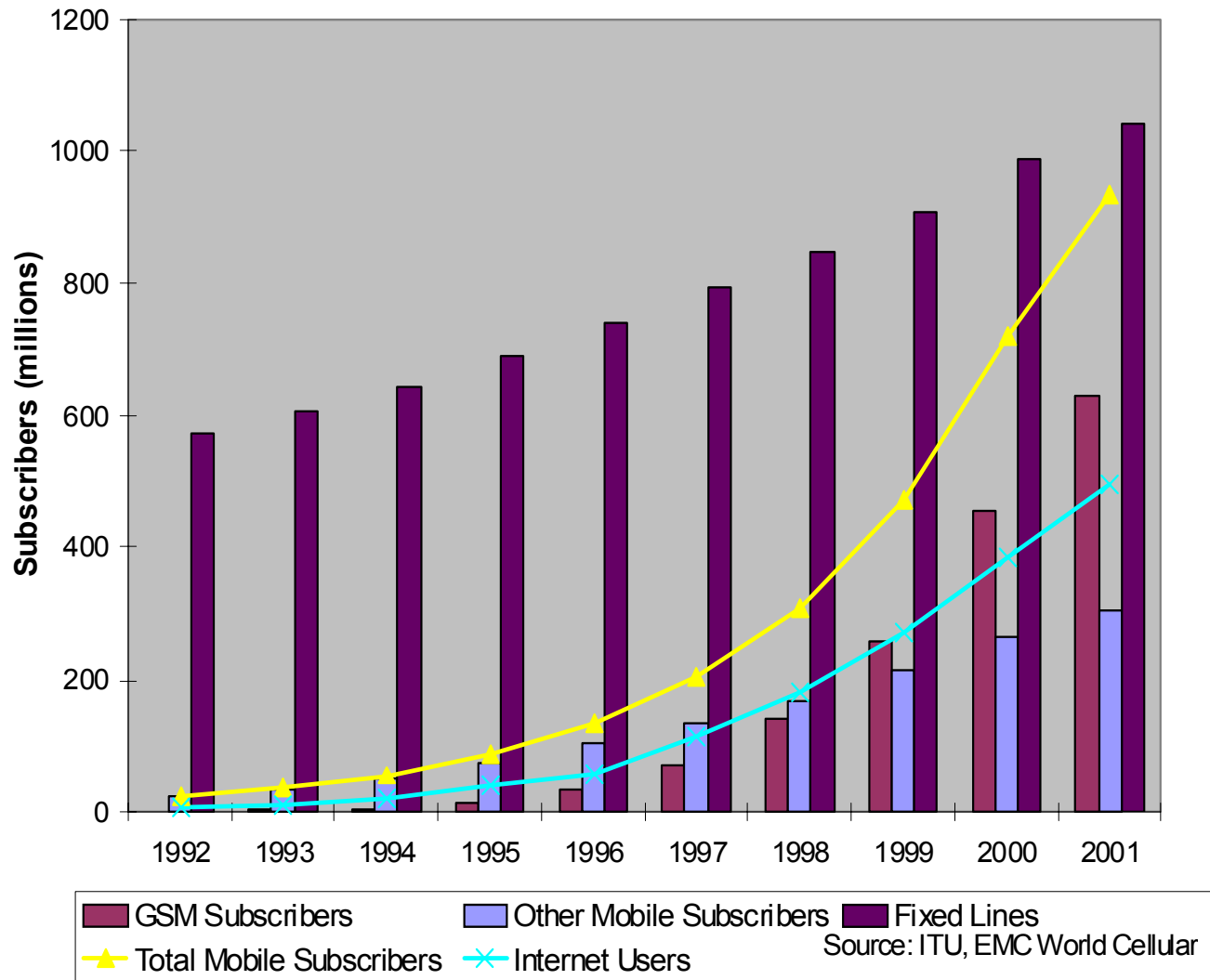
- GSMA budget €6.1M, total research value €20M.
- Studies began 2000, results have started to be published.
- GSMA also participating in new EMF-NET and EIS-EMF projects.

# Improved Visual Design

- Base station numbers will increase.
- Sharing of sites, masts and other infrastructure may be permitted.
- Low-visual-profile antenna designs:
  - May not provide equivalent radio coverage.
  - Extra costs associated with novel designs.
  - Not a panacea for siting concerns.

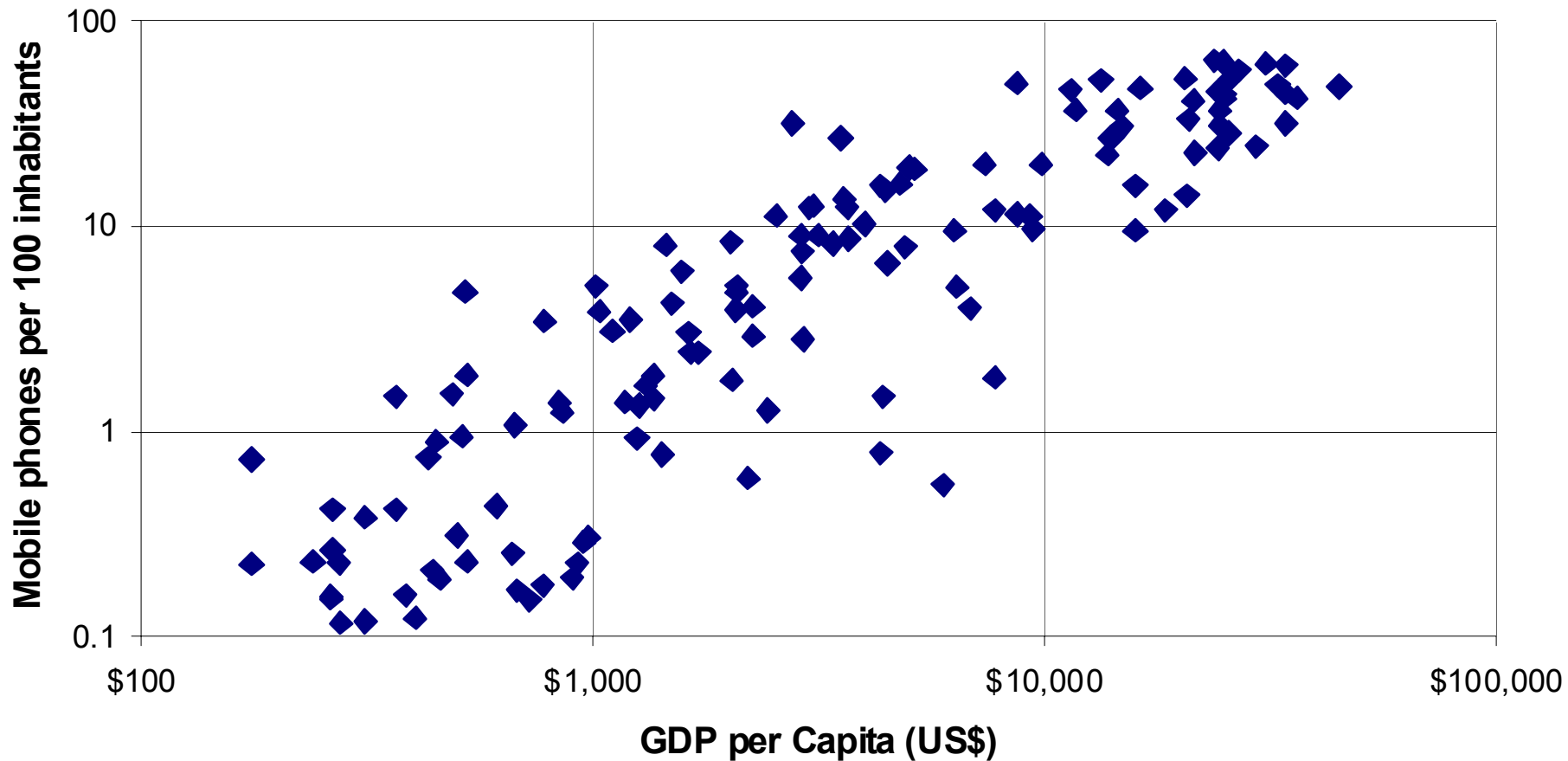


# Global communications



- In Q1/2002 global mobile subscribers exceeded fixed lines.
- *'More phones in Manhattan than all of Africa.'*
- In Africa, fixed lines at 3% but mobiles at 6.2%

# Mobile Communications & GDP



- Mobile revenue as a percentage of GDP: USA = 0.67%, South Africa = 1.96%
- By 2007 the global wireless telecoms industry will be similar to crude oil production. (Yankee Group, 2003)

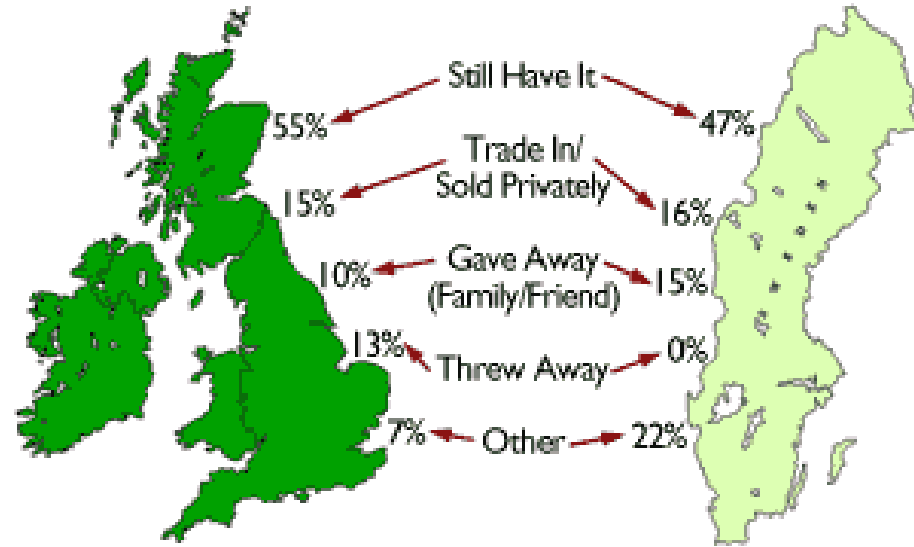


# Energy Use in Operations

- Data from Fraunhofer ICT energy study in Germany (2005 projections):
  - Individual handset energy usage per annum (kWh/annum):
    - GSM = 0.6      3G = 2.1      Charger = 2.2
    - Savings via intelligent chargers and unplugging when not in use.
  - Individual base station energy usage per annum (MWh/annum):
    - GSM = 15.6      3G = 33.4
    - Savings via reduced cooling needs and optimum network design.
- More direct measure related to source of the electrical energy.
  - Through greater network efficiency and purchase of renewable energy  
Orange (UK) reduced CO<sub>2</sub> per call minute from 5.2g to 1.9g.
  - Solar systems being used to power network equipment in Australia.
- Can be more efficient than alternatives:
  - *'Wireless teleconferencing results in 1-3 orders of magnitude lower CO<sub>2</sub>, NO<sub>x</sub>, and SO<sub>2</sub> emissions than business travel.'* (Toffel & Horvath, 2003)

# Recycling of handsets

- About 380 million phones put on the market in 2001.
- Equivalent to about 50,000 tons of waste = 0.03% of total e-waste per annum.
- Handsets contain high value and toxic materials:
  - 65-80% recyclability by mass +10% via energy recovery (Nokia).
- How best to recycle a phone:
  - Dismantle versus smelt?
- Many types of schemes.
- Consumers perceive value in old phones



How Consumers in the UK and Sweden Disposed on their Last Mobile Phone  
(Survey for Mobile Take Back, 1997)

# Positive and Negative Stories Abound

**"LA may block cell phones to deter threats"**

**"Mo  
mo"**

**Fears of porno flood when  
mobile phones go on**

**"Quand le texto sauve la  
vie"**

**"Mobile phones  
help track  
missing girls"**

**"Mobile phone  
saves skier's life"**

- ezboard.com

- The Hindu, India

**"Mobiles boost  
business"**

- nwes.bbc.co.uk

- The Australian

**"US Senate to ban  
pictures"**

- BE

**"Mobiles help curb  
Finland's suicide rate:  
study"**

- Clari.net

**o ban furtive**

- BBC Worldwide

**"Les SMS ont changé  
la vie des sourds et  
des malentendants"**

- largeur.com, Switzerland

TX

**"Le SMS,  
social des sourds"**

- astel.be, Belgium

**"F  
yc"**

**"Mobile phone  
saves jogger  
trapped in mud"**

- Aldershot News, UK

**"Parents vie  
mobiles as  
Survey"**

- Webindia123.com, India

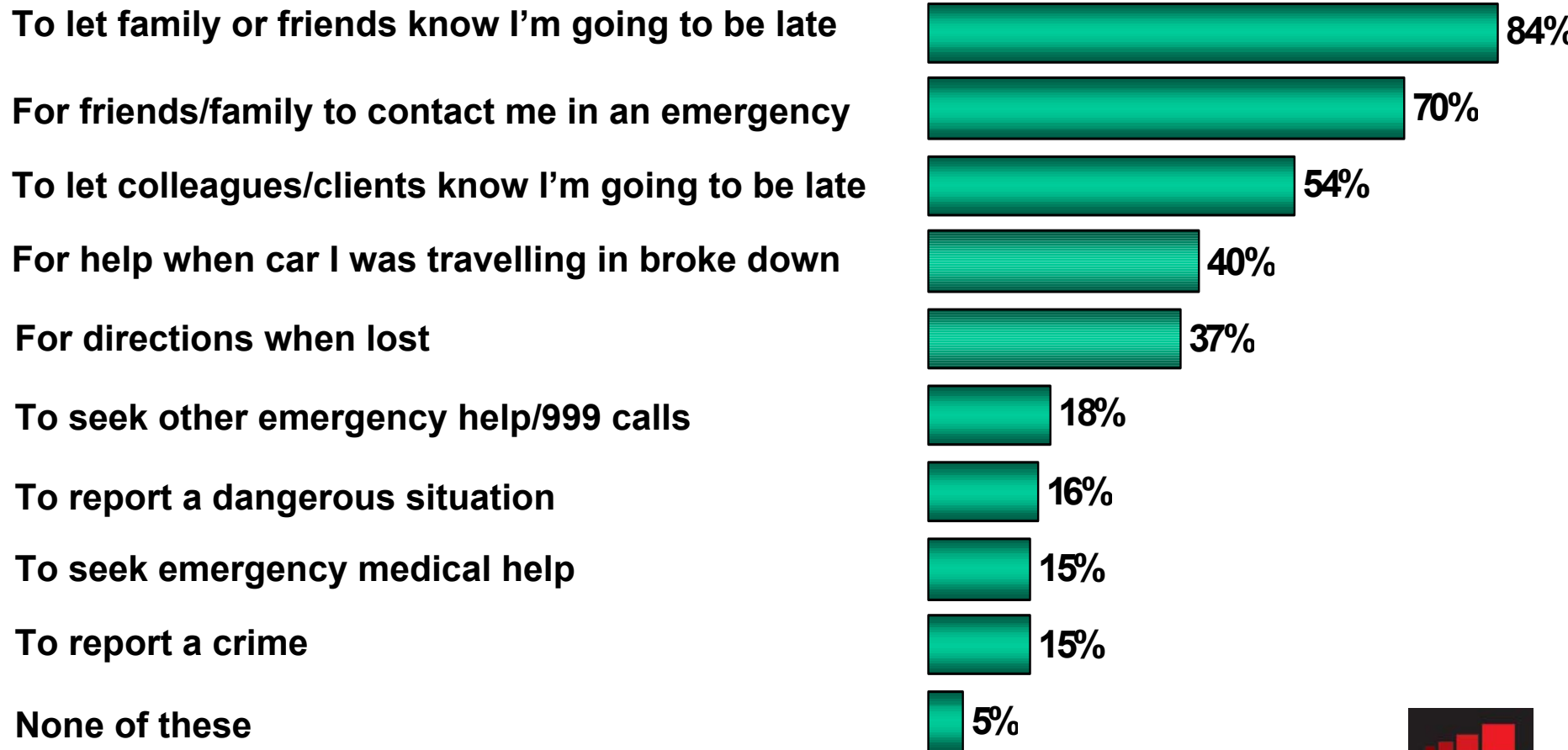
# Social Capital

- *‘Social capital refers to the value that is produced from relationships between people and groups of people... [mobile phones] are accessible to unprecedented numbers of people. And as the number of people connected goes up, the value for social capital goes up much faster – a relationship known as “Metcalfe’s Law.”* (Digital Europe, 2003)
- Mobiles intensify existing social contacts (DWRC, 2003) but also play a part in ‘smart mobs’.
- Courteous use is an individual responsibility best supported through education rather than legislation.



# Phones deliver personal benefit

**Q** *In which, if any, of the following situations have you used a mobile phone?*



Source: MMF/GSMA/MORI. Base: All mobile phone users (1,511), December 2003.

# Social Research Opportunity

- Need to understand the social impact:
  - Clarify both the positive and negative aspects.
  - Enhance the upside, minimize the downside.
- Potential themes of research (NTT DoCoMo):
  - Impact on society and culture, e.g, usage etiquette.
  - Legal systems, e.g., ‘digital shoplifting’.
  - Impact on industry, e.g., impact on other sectors.
  - Mobile phone as a social infrastructure, e.g., disasters.
- Initial GSMA activities:
  - York University report identified potential usage of mobile data in pre-treatment of accident victims.
  - Oxford (UK) consortium to examine use of mobile phones to contact ambulance services.



# Possible Sustainability Definition

- The provision of mobile communications services in a manner that offers continual future business growth while respecting the environment and society in which the business operates so that the mobile network operator is recognised by all stakeholders as a responsible corporation.
- It is important that mobile communications sustainability be amenable to measurement, independent verification and on-going review.

# To finish with a reflection...

## Why phones are replacing cars

- *'Phones are now the dominant technology with which young people, and urban youth in particular, now define themselves.'*
- *'A chirping handset is a much greener form of self-expression than an old banger. It may irritate but it is safe.'*
- *'Less pollution, less traffic, fewer alcohol-related deaths and injuries: the switch from cars to phones cannot happen soon enough.'*

(Selected quotes, *The Economist*, 29 April 2004)



- GSMWorld:
  - <http://www.gsmworld.com/using/health/>
- GSMEurope:
  - [http://www.gsmworld.com/gsm europe/work\\_groups/health.shtml](http://www.gsmworld.com/gsm europe/work_groups/health.shtml)
- Mobile Manufacturers Forum (MMF):
  - <http://www.mmfa.org/>
- World Health Organisation:
  - <http://www.who.int/peh-emf/>