

# Content versus connectivity and the future of 3G

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# TALE OF A BUBBLE

How the 3G fiasco came close to wrecking Europe



## The Mighty Have Fallen

### NOKIA

**THEN** With a steady flow of new networks and nifty handsets, the Finns were positioned to be the colossus of the next Internet.

**NOW** Growth is slowing, the 3G market is swooning, and Nokia faces a brutal software battle with Microsoft in Web applications and handsets.

### VODAFONE

**THEN** The only global wireless operator, Vodafone could stake a claim to 100 million customers—and sell them virtually everything.

**NOW** Stitching together dozens of foreign phone companies is a bear. The key now is to make money on voice. The mobile Net? Put it on hold.

### DEUTSCHE TELEKOM

**THEN** DT had the biggest Net service in Europe and was stretching across the Atlantic with a \$50 billion buyout of VoiceStream.

**NOW** With \$60 billion in debt, Sommer would likely unload VoiceStream—if only there were any buyers. His grip on the top job is loosening.

### FRANCE TELECOM

**THEN** With a \$36 billion buyout of Orange, Bon landed a better brand than his own. But did he get the Prime Minister's O.K.?

**NOW** Besides Orange, his buys are duds, from German wireless to British cable. With a new government, Bon's post could hinge on his rapport with Chirac.

Photo: BusinessWeek

# *Motivation and Outline*

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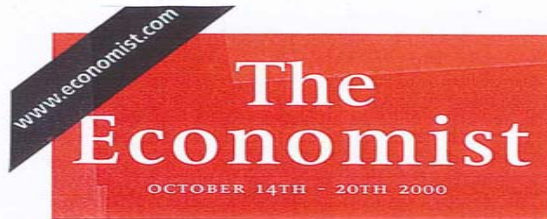
**Novel perspective: Economics and history**

**Main points:**

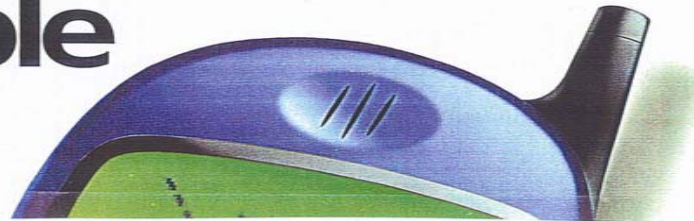
- **Long historical tradition of misplaced overemphasis on content**
- **Content is not now and has never been king: connectivity is what matters most**
- **3G was based on a flawed business model but may yet succeed through the “killer app” of voice.**

*Rejection of WAP (content) and eager acceptance of SMS (connectivity) should not have been a surprise: it fits the dominant historical pattern*

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# The big wireless gamble



Just as consumers can sometimes surprise by rejecting technology (eg, WAP), they can also surprise by embracing it (eg, short messaging).

## *Example of common but ludicrous overvaluation of content*

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**What would the Internet be without “content?” It would be a valueless collection of silent machines with gray screens. It would be the electronic equivalent of a marine desert - lovely elements, nice colors, no life. It would be nothing.**

**E. Bronfman, Jr., May 2000**

## *Value of bits:*

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	<b><u>Price/MB</u></b>
<b>Cable TV</b>	<b>\$0.0001</b>
<b>Wired Phone</b>	<b>0.0800</b>
<b>Mobile Phone</b>	<b>3.0000</b>
<b>SMS</b>	<b>3000.0000</b>

# *Dominant types of communication: business and social, not content, in the past as well as today*

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Thirty years ago you left the city of Assur. You have never made a deposit since, and we have not recovered one shekel of silver from you, but we have never made you feel bad about this. Our tablets have been going to you with caravan after caravan, but no report from you has ever come here.

circa 2000 B.C.

A fine thing you did! You didn't take me with you to the city! If you don't want to take me with you to Alexandria, I won't write you a letter, I won't talk to you, I won't say Hello to you even. ... A fine thing you did, all right. Big gifts you sent me - chicken feed! They played a trick on me there, the 12th, the day you sailed. Send for me, I beg you. If you don't, I won't eat, I won't drink. There!

circa 200 A.D.

# ***Historically common pattern: government and business decision-makers emphasize content, users prefer connectivity***

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**For the first 30 years of the telephone, promoters struggled to identify the killer application that would promote its wide adoption by home owners and businesses. At first the telephone was promoted as a replacement for the telegraph, allowing businesses to send messages more easily and without an operator. Telephone promoters in the early years touted the telephone as new service to broadcast news, concerts, church services, weather reports, etc. Industry journals publicized inventive uses of the telephone such as sales by telephone, consulting with doctors, ordering groceries over the telephone, listening to school lectures and even long distance Christian Science healing! The concept that someone would buy the telephone to chat was simply inconceivable at that time.**

**C. Fischer, *America Calling***



# *The Internet succeeded by accident. Email, its “killer app,” was not among the original design criteria:*

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**The popularity of email was not foreseen by the ARPANET's planners. Roberts had not included electronic mail in the original blueprint for the network. In fact, in 1967 he had called the ability to send messages between users “not an important motivation for a network of scientific computers” . . . . Why then was the popularity of email such a surprise? One answer is that it represented a radical shift in the ARPANET's identity and purpose. The rationale for building the network had focused on providing access to computers rather than to people.**

**J. Abbate, *Inventing the Internet***

# *Is the doom and gloom in the wireless industry justified?*

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## **Negatives:**

- **70+ percent penetration ratios point to saturation.**
- **Mobile internet access a bust.**

## **Positives:**

- **Wrong metrics are being used: number of subscribers instead of usage.**
- **Voice usage has much further to grow!**

*Minutes of outgoing calls per day in the UK per phone: far lower for mobile than fixed, as is true around the world*

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<u>Quarter</u>	<u>Fixed</u>	<u>Wireless</u>
1999 q2	15.7	3.49
1999 q3	16.0	3.51
1999 q4	16.5	3.58
2000 q1	17.3	3.37
2000 q2	17.2	3.19
2000 q3	19.7	2.98
2000 q4	21.7	3.11
2001 q1	23.2	2.91
2001 q2	22.9	2.78
2001 q3	23.8	2.85
2001 q4	24.6	2.94

# *Wireless voice has yet to eat into wired voice usage*

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## Telecom usage in UK

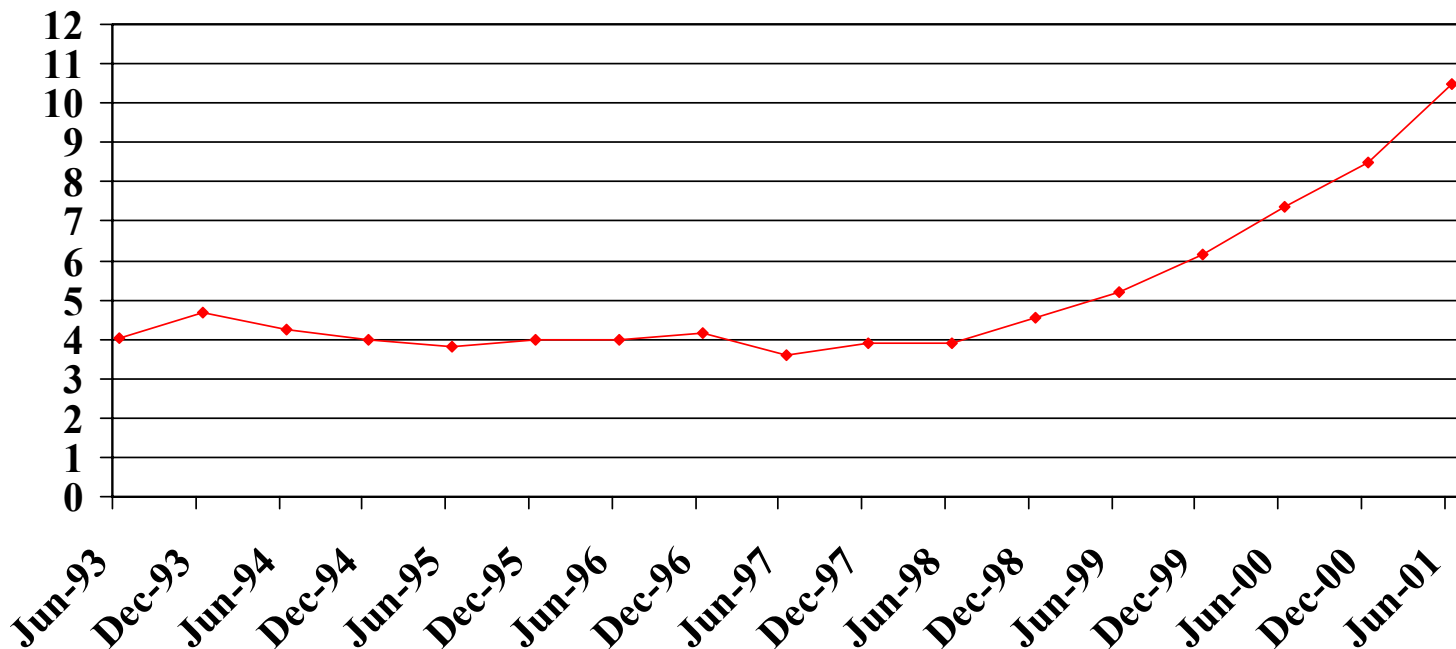
(millions of minutes of outgoing calls and millions of SMS messages)

<u>Quarter</u>	<u>Wired Phones (Total)</u>	<u>Wired Voice</u>	<u>Wireless Voice</u>	<u>SMS</u>
1999q2	47220	36979	4956	159
1999q3	50608	37590	5804	297
1999q4	53786	38869	7092	599
2000q1	56728	38806	7848	1306
2000q2	58339	37783	8388	1421
2000q3	62783	38237	9340	1648
2000q4	68289	38536	10525	2215
2001q1	73525	39349	11064	2758
2001q2	72292	37419	10874	2762
2001q3	75064	37670	11222	3069
2001q4	79187	37963	11867	3447

# *Business models (even when service providers stumble into them) can make a quantum difference: The effect of imaginative pricing plans in U.S., starting with AT&T Digital One-rate in April, 1998*

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North American cell phone usage (minutes of incoming and outgoing calls per day)



# *Mobile voice quality*

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- **Current mobile voice is marginal, even under ideal transmission conditions**
  - **Result of design under stringent bandwidth limitations**
  
- **More bandwidth allows for better voice quality**
  - **Different quality levels on same system allow market segmentation**

# *3G was based on wrong assumptions, but may yet succeed through the “killer app” of increased voice usage*

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**There is plenty of room to grow voice usage**

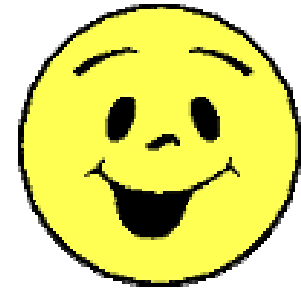
**Think creatively about business models, especially pricing**

**Use higher bandwidth to stimulate greater voice usage.**

**Use higher bandwidth to segment the market and gain revenues by providing different quality levels (be less efficient with compression!).**

**Provide toll-free wireless calling numbers to get revenue from businesses.**

**Use content and other data services as inducements to greater voice usage (i.e., as the dessert, not the main meal)**



***Main conclusion:***

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**Voice was the "killer app" of 1G and 2G, and will be the "killer app" of 3G, if the right business model is adopted.**

**More details: papers at**

**<http://www.dtc.umn.edu/~odlyzko>**