

10 YEARS MOBILE MULTIMEDIA: FROM MOTOROLA RAZR TO IPHONE 5

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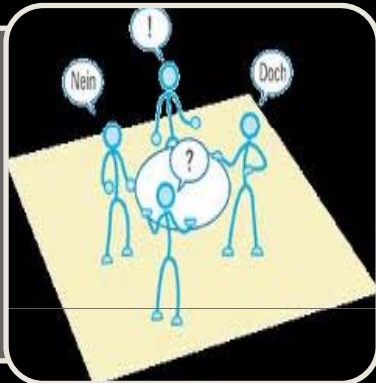
Mobile Multimedia: The **Technology** Perspective

- Evolution of Devices



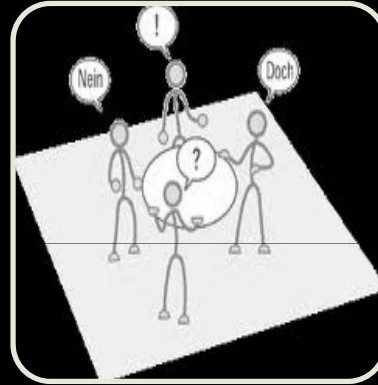
Mobile Multimedia: The **User** Perspective

- Changing paradigms in user/phone interaction
- Application Domains



Mobile Multimedia: The **Research** Perspective

- Evolution of Mobile Multimedia as a scientific discipline



THE TECHNOLOGY PERSPECTIVE

Personal Mobile Devices : Types and Facts

- Personal mobile device types
 - Laptops, Pads, **Smartphones**
 - **Wearables**, Wrist-worn devices, Head-worn displays
 - **Special purpose** devices
 - MP3 players, personal health care devices, etc.



Personal Mobile Devices : Types and Facts

Rank ↕	Country or region ↕	Number of mobile phones ↕	Population ↕	% of population ▼	Last updated date
47	 Hong Kong	13,264,896	7,008,900 ^[54]	187.9	Nov. 2010 ^[55]
39	 Saudi Arabia	46,000,000	27,137,000	169.5	Jun 2010 ^[47]
5	 Russia	256,117,000	142,905,200 ^[10]	155.5	July 2011 ^[12]
61	 Lithuania	4,960,000	3,341,966	148.4	February 2010 ^[63]
59	 Estonia	1,982,000	1,340,602	147.8	April 2009 ^[citation needed]
14	 Italy	88,580,000	60,090,400	147.4	Dec. 2008 ^[23]
57	 Singapore	7,289,000	5,076,700	143.5	December 2010 ^[60]
52	 Bulgaria	10,655,000	7,600,000	140.2	2008 ^[50]
50	 United Arab Emirates	11,540,040	8,264,070	139.6	Nov 2011 ^[66]
46	 Portugal	14,500,000	10,632,000	137.0	2008 ^[citation needed]
4	 Brazil	259,290,000	192,379,287 ^[10]	134.78	October 2012 ^[11]
9	 Germany	107,000,000	81,882,342	130.1	2009 ^[18]
12	 Iran	96,165,000	73,973,000	130	February 2012 ^[21]
53	 Israel	9,319,000	7,310,000	127.5	2008 ^[50]
54	 Denmark	7,000,000	5,543,819	126.2	February 2008 ^[57]
25	 Argentina	50,409,800	40,134,425	125.6	2010 ^[34]
26	 Poland	47,153,200	38,186,860 ^[35]	123.48	2010 ^[36]
30	 Taiwan	28,610,000	23,197,947	123.33	September 2011 ^[40]
16	 United Kingdom	75,750,000	61,612,300	122.9	Dec. 2008 ^[25]
41	 Chile	21,000,000	17,094,270	122.9	Dec. 2010 ^[48]
51	 Sweden	11,194,000	9,103,788	122.9	(July 2012 est.)
37	 Netherlands	20,000,000	16,515,057	121.1	Nov. 2009 ^[45]

Indonesia:
Rank 6
Penetration 109.28%

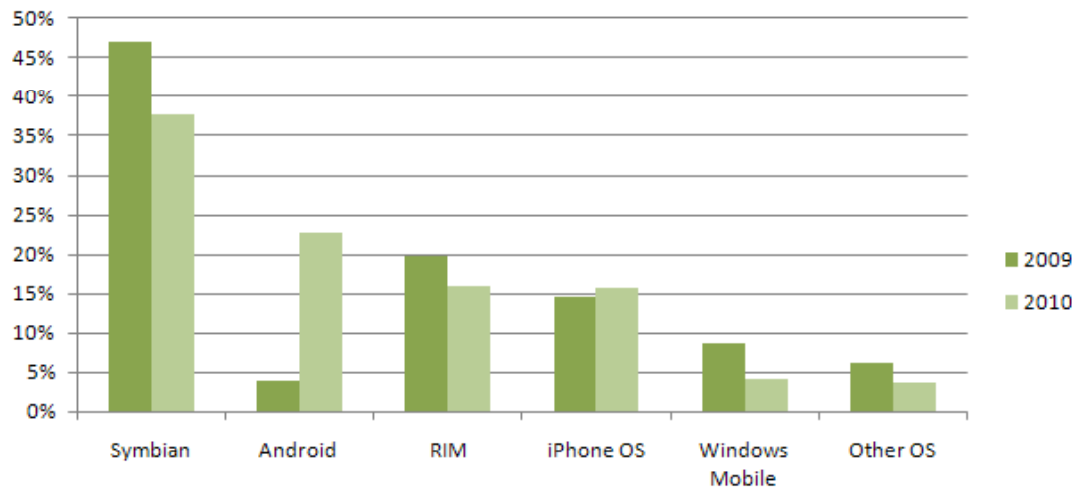
Personal Mobile Devices : Types and Facts

- **2000+** The Phone reaching into the Internet
- **2003+** Digital Multimedia, Video, Stereo, Audio, Camera, Camcorder, Mobile DTV, Email, SMS, MMS, Office applications, GPS, Wi-Fi, Bluetooth, ...
- **2007+** The Internet reaching into the Phone



Personal Mobile Devices : Smartphone OSs

- Open source OSs will **gain acceptance** in the future
 - Open source software is **targeted at the needs** of its users and developers
 - Open source software **communities** allow better support



Worldwide smartphone sales to end users by operating system

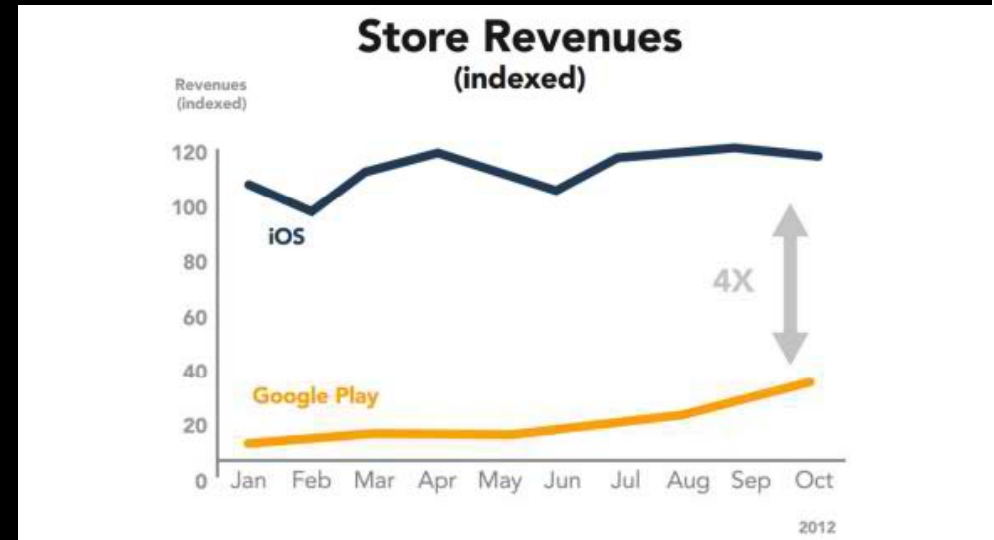
© 2010 Gartner, Inc.

symbian
OS



Personal Mobile Devices : Apps

- **Google Play Store**
 - **94,738 apps** (May 1, 2011)
- **Apple App Store**
 - **381,062 apps** (May 1, 2011)
- 10.9 billion apps downloaded worldwide 2010
- Average user has about **20 apps**
- Apps are often developed for a certain region or a specific purpose
 - People are **willing to pay** for local services



Personal Mobile Devices : Trends

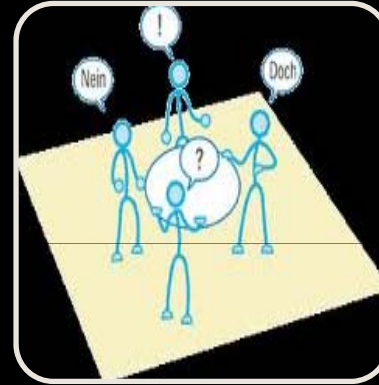
- Smartphone Sales **exceeded PC sales** in 2011

Worldwide smart phone and client PC shipments

Shipments and growth rates by category, Q4 2011 and full year 2011

Category	Q4 2011 shipments (millions)	Growth Q4'11/Q4'10	Full year 2011 shipments (millions)	Growth 2011/2010
Smart phones	158.5	56.6%	487.7	62.7%
Total client PCs	120.2	16.3%	414.6	14.8%
- Pads	26.5	186.2%	63.2	274.2%
- Netbooks	6.7	-32.4%	29.4	-25.3%
- Notebooks	57.9	7.3%	209.6	7.5%
- Desktops	29.1	-3.6%	112.4	2.3%

Source: Canallys estimates © Canallys 2012




THE USER PERSPECTIVE

Cell Phone Usage

- **3339** texts are sent by an American teen each MONTH
- The average cell phone life expectancy is **1.5 years**
- About **4 million** people are having a cell phone conversation at any given second in the world...
- **200.000** text messages are sent every second



Smartphone Usage

What you do with your smartphone? 

81% browse the Internet, 77% search, 68% use an app, and 48% watch videos on their smartphone.



<http://www.xcubelabs.com/smartphone-mobile-app-usage.php>

Smartphone Usage

Smartphone for Shopping

79% use the smartphone to help with shopping.

70% of the consumers use the smart phone while in a store



54% use it to find a retailer



49% use it to compare prices



48% use it to get coupons and vouchers.



44% use it to find product reviews.

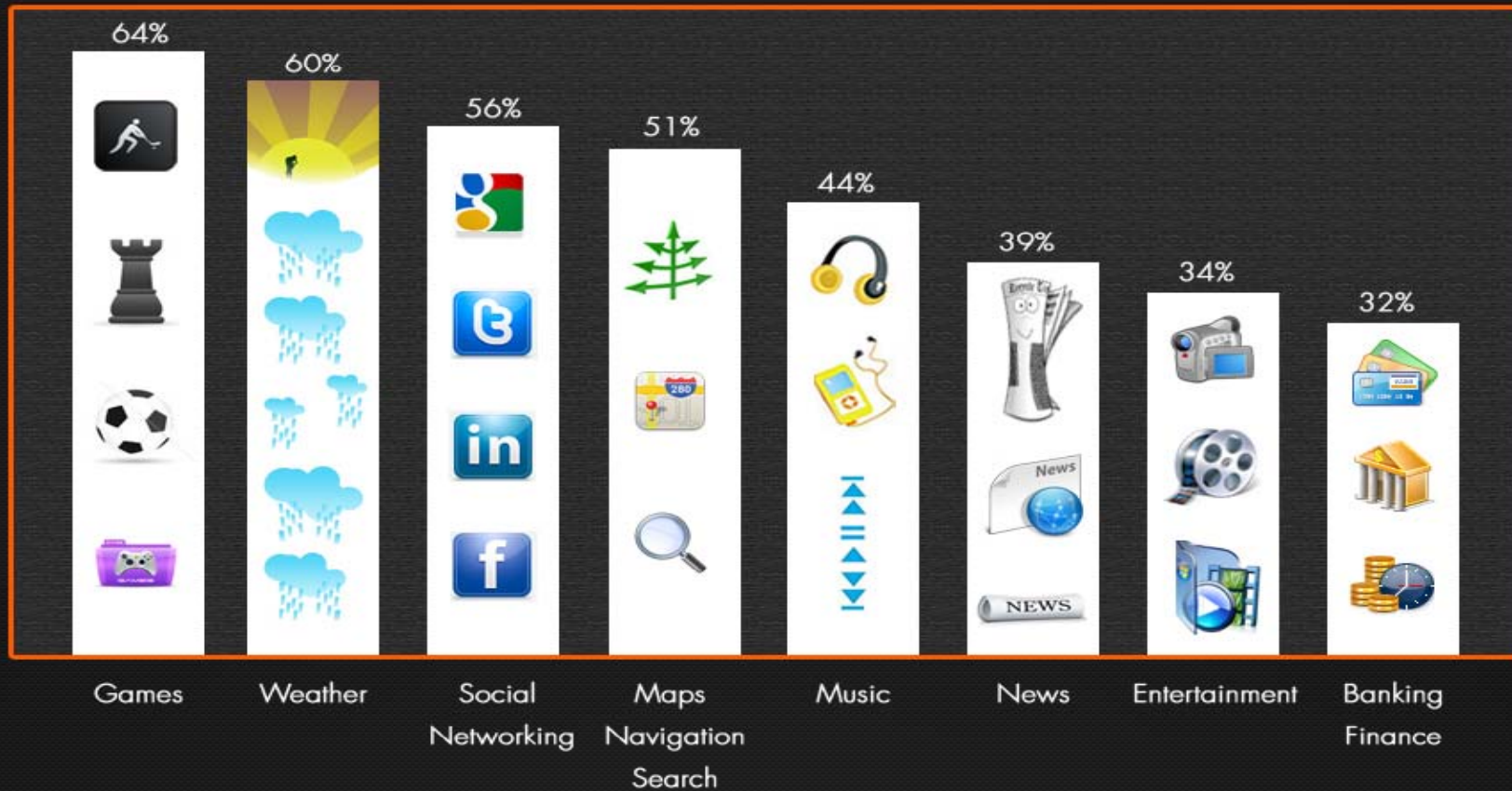


74% make a purchase based on a smart phone search

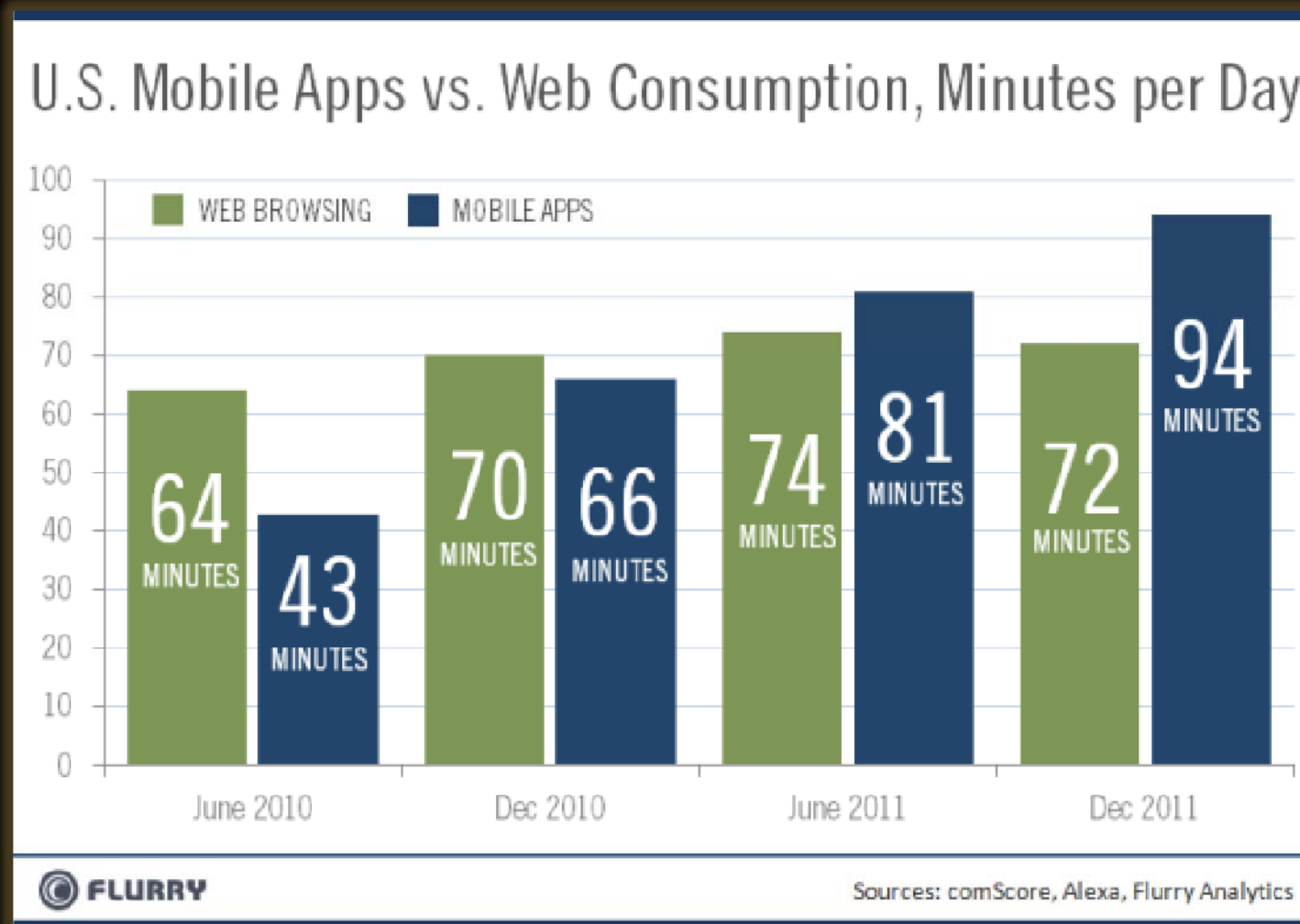


Mobile App Usage

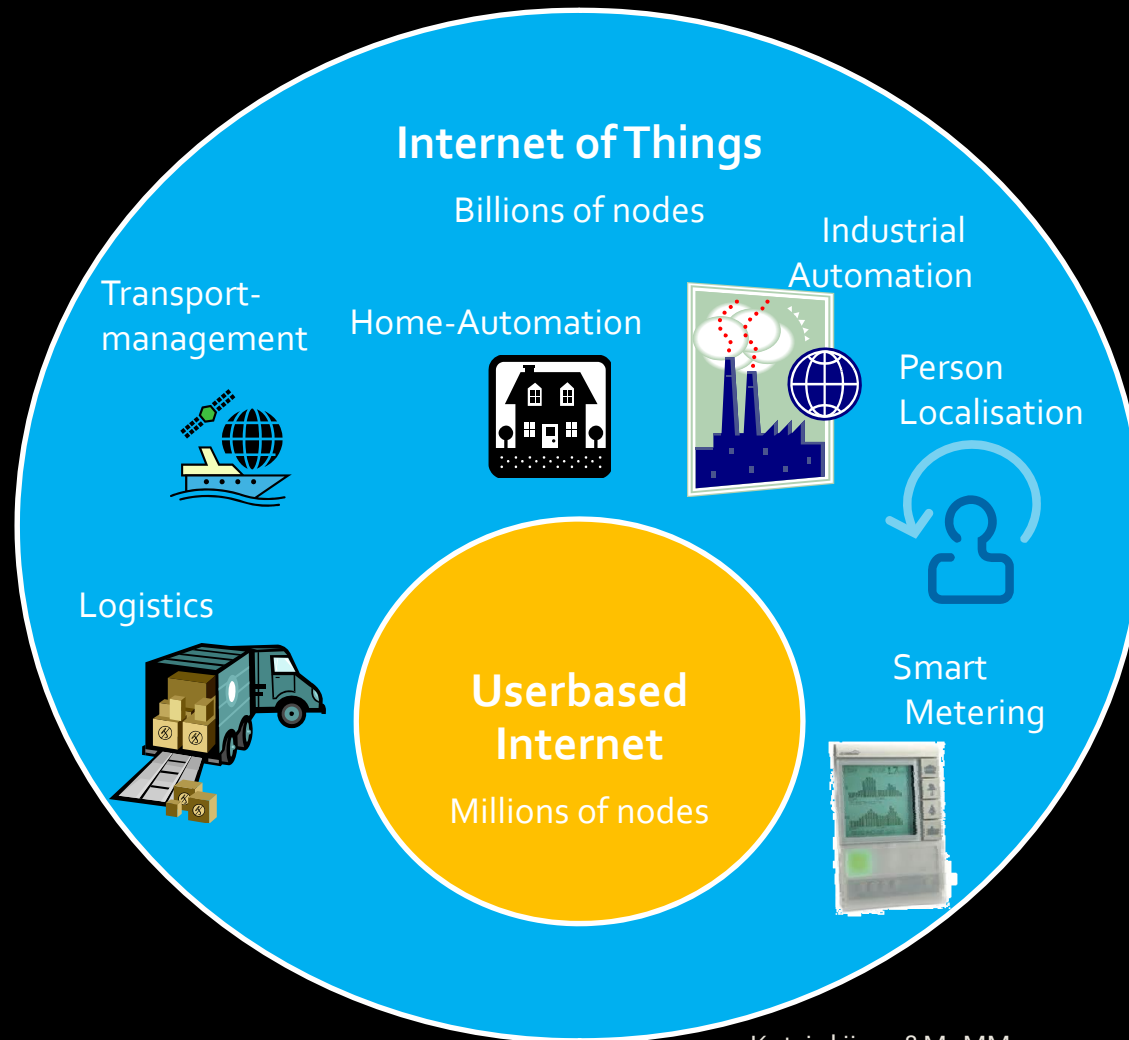
Games are the most popular mobile app category 

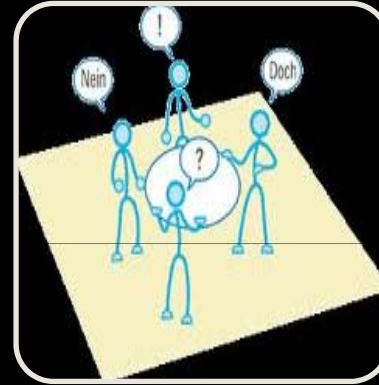


App vs. Internet Usage



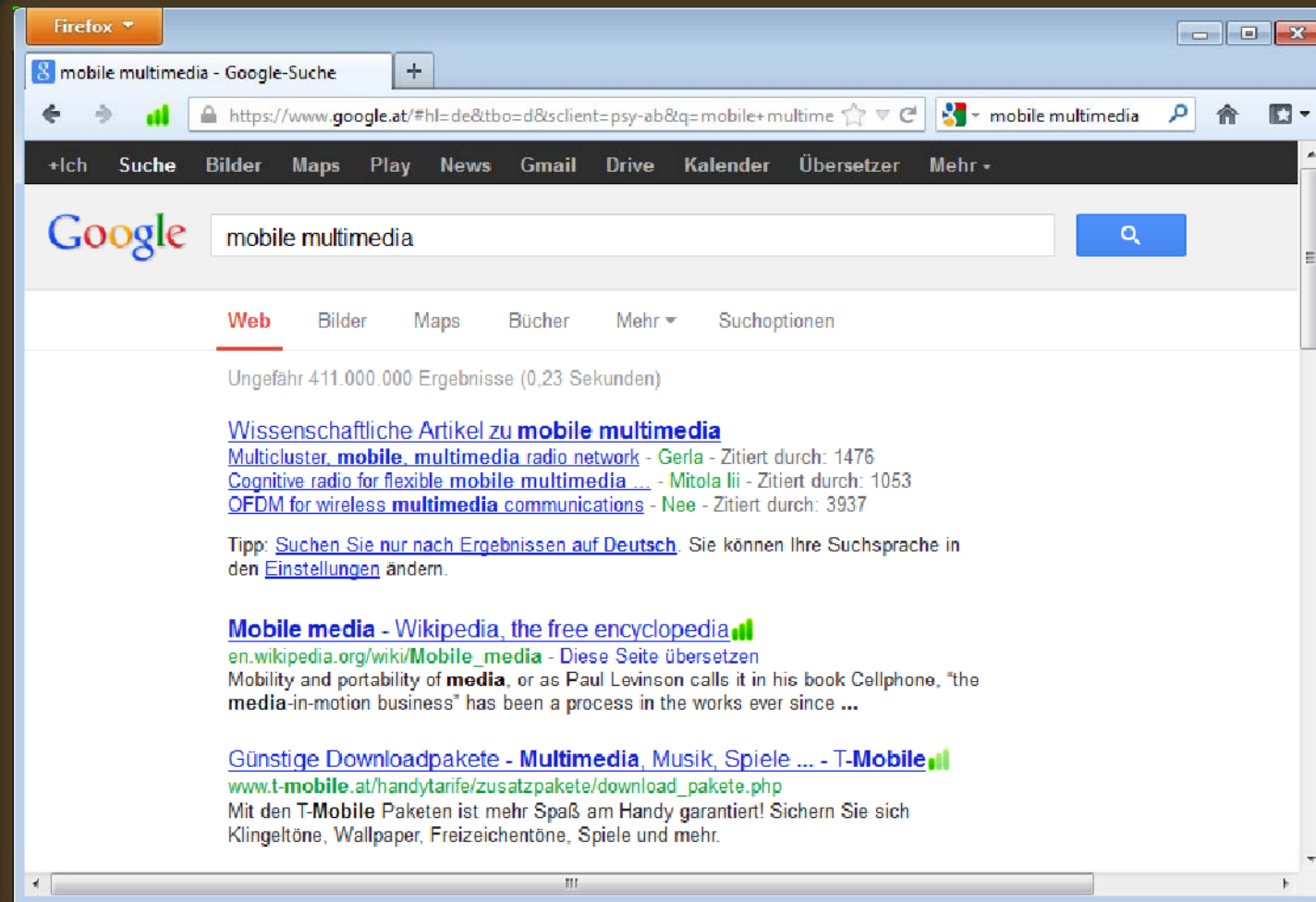
But not only human users ...





THE RESEARCH PERSPECTIVE

What is mobile multimedia?



What is mobile multimedia?

- **Mobility and portability of media**, media-in-motion **business** [Levinson 2004]
- Creating, manipulating, presenting, storing, transmitting information in discrete and continuous media **using mobile devices** [modified according to Steinmetz 1993]

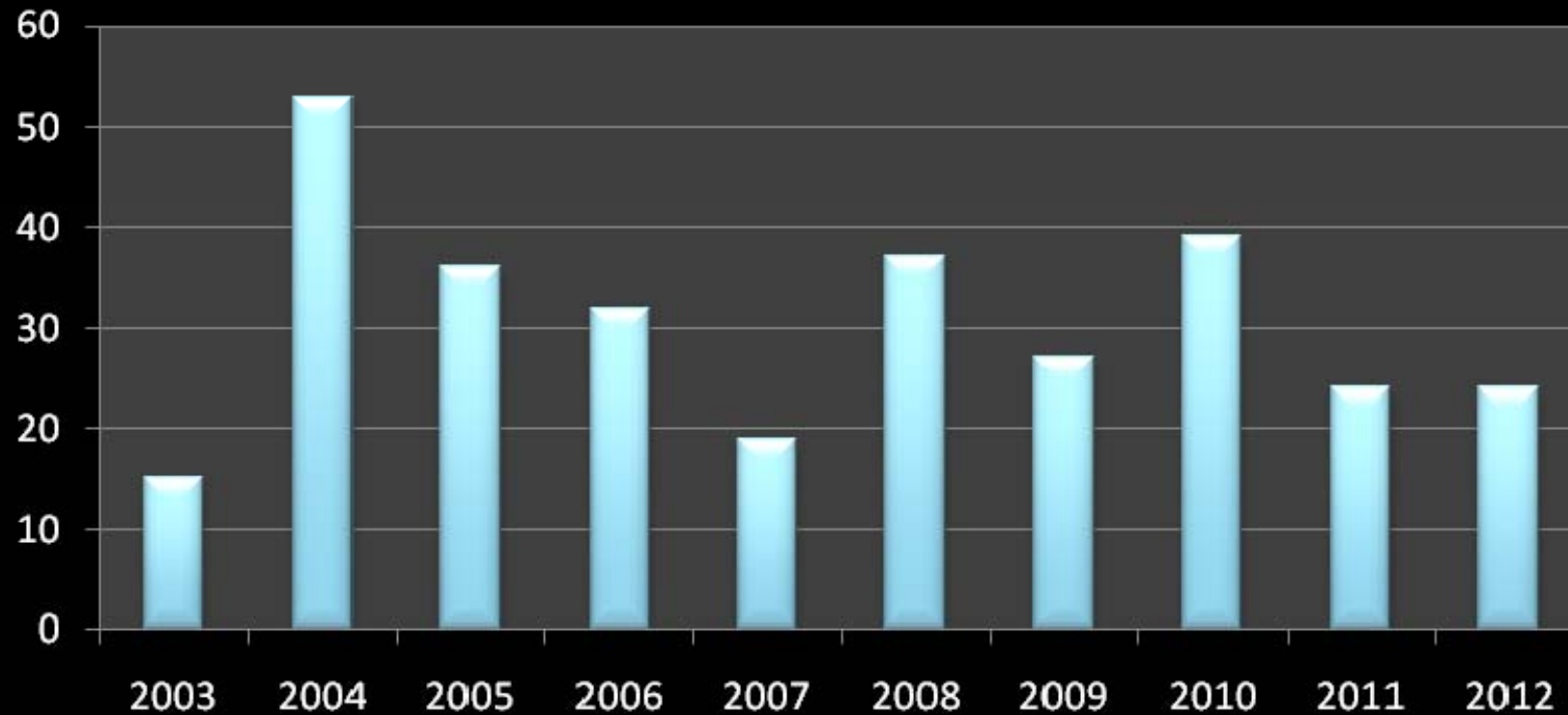
Contributions of MoMM

- 10th International Conference on Advances in Mobile Computing and Multimedia, December 3-5, **2012**, Bali, **Indonesia**
- 9th International Conference on Advances in Mobile Computing and Multimedia, December 5-7, **2011**, Ho Chi Minh City, **Vietnam**
- 8th International Conference on Advances in Mobile Computing and Multimedia, November 8-10, **2010**, Paris, **France**
- 7th International Conference on Advances in Mobile Computing and Multimedia, December 14-16, **2009**, Kuala Lumpur, **Malaysia**
- 6th International Conference on Advances in Mobile Computing and Multimedia, November 24-26, **2007**, Linz, **Austria**
- 5th International Conference on Advances in Mobile Computing and Multimedia, December 3-5, **2007**, Jakarta, **Indonesia**
- 4th International Conference on Advances in Mobile Computing and Multimedia, December 4-6, **2006**, Yogyakarta, **Indonesia**
- 3rd International Conference on Advances in Mobile Multimedia, September 19-21, **2005**, Kuala Lumpur, **Malaysia**
- 2nd International Conference on Advances in Mobile Multimedia, September 22-24, **2004**, Bali, **Indonesia**
- 1st International Conference on Advances in Mobile Multimedia, September 15-17, **2003**, Jakarta, **Indonesia**

Over 300 full papers
+ short papers
& workshops

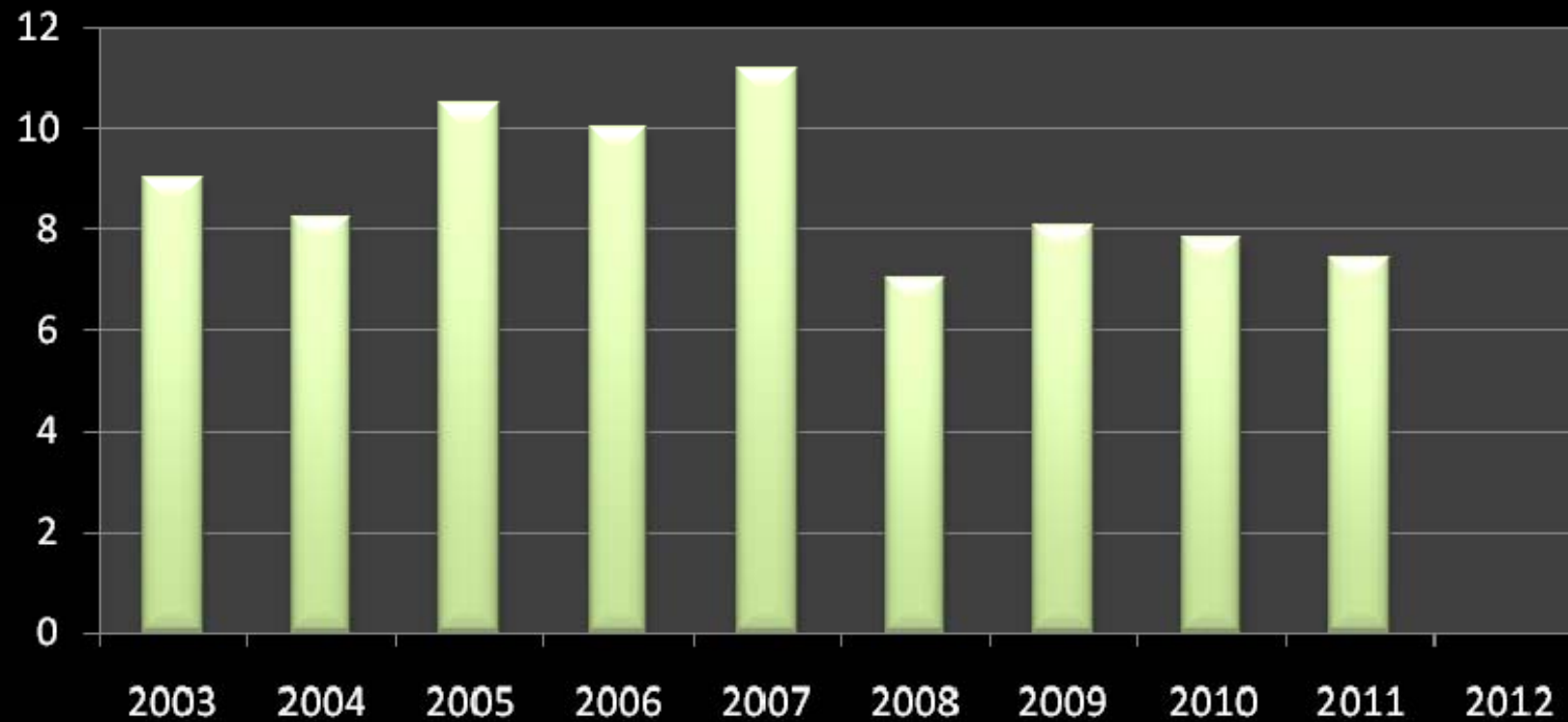
MoMM Paper Statistics

Number of Papers



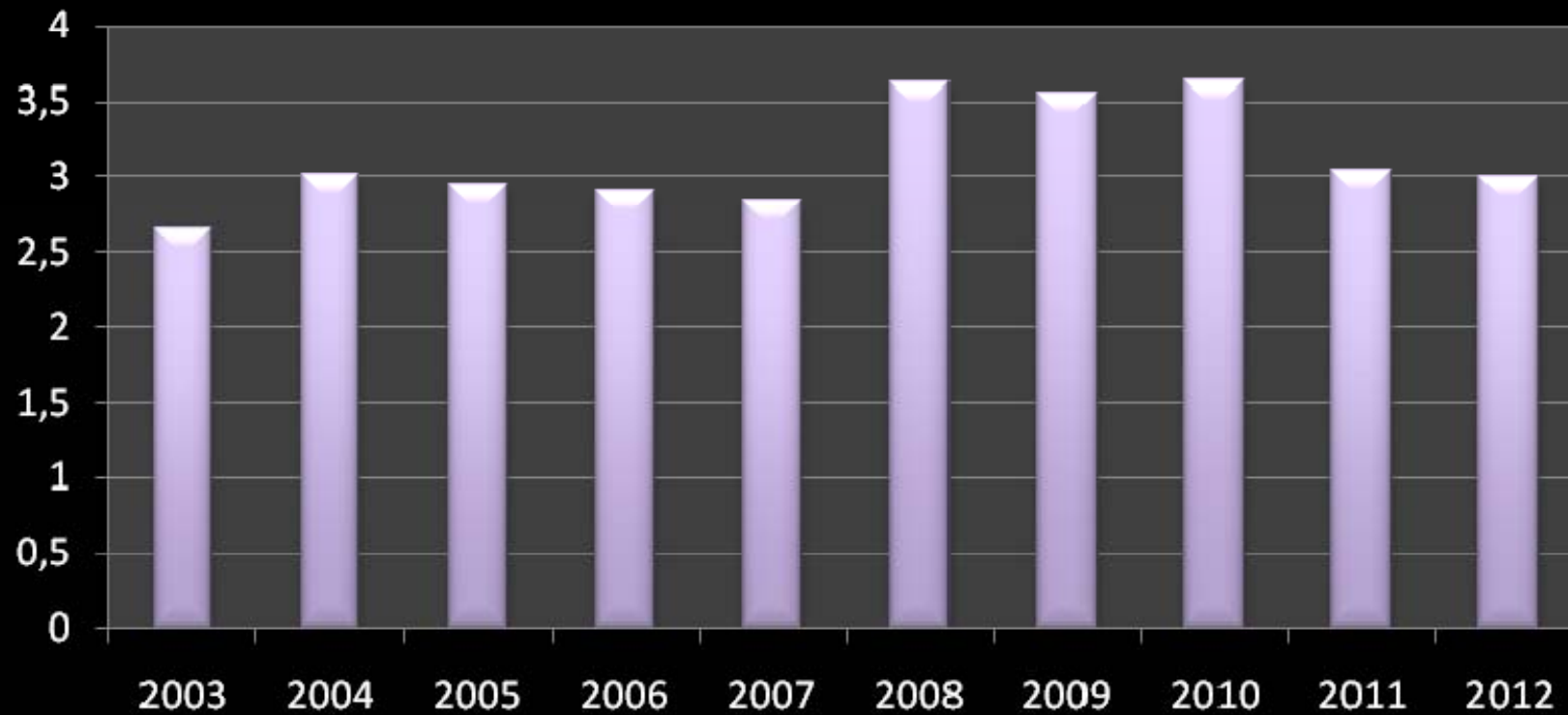
MoMM Paper Statistics

Average Page Length

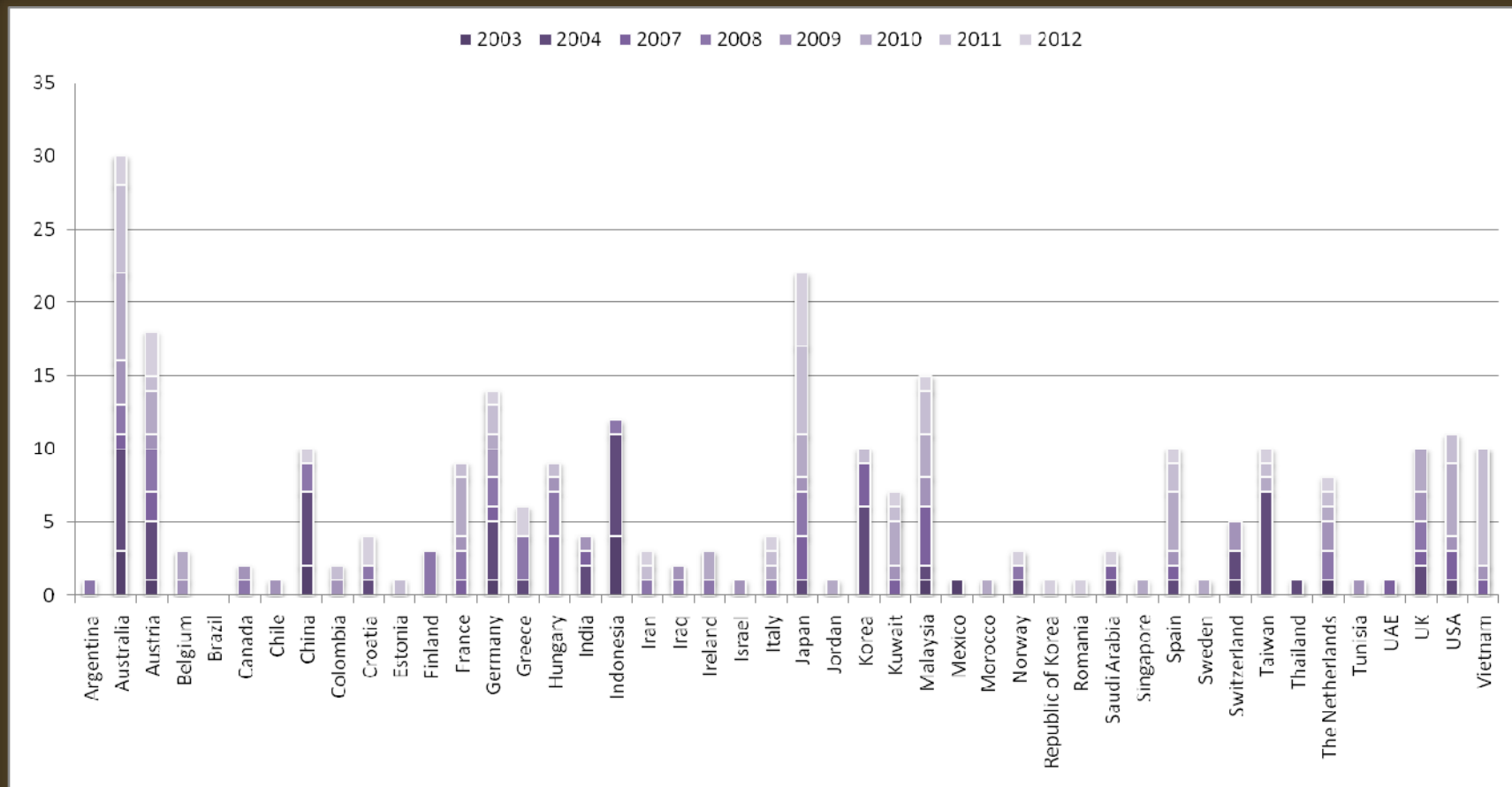


MoMM Paper Statistics

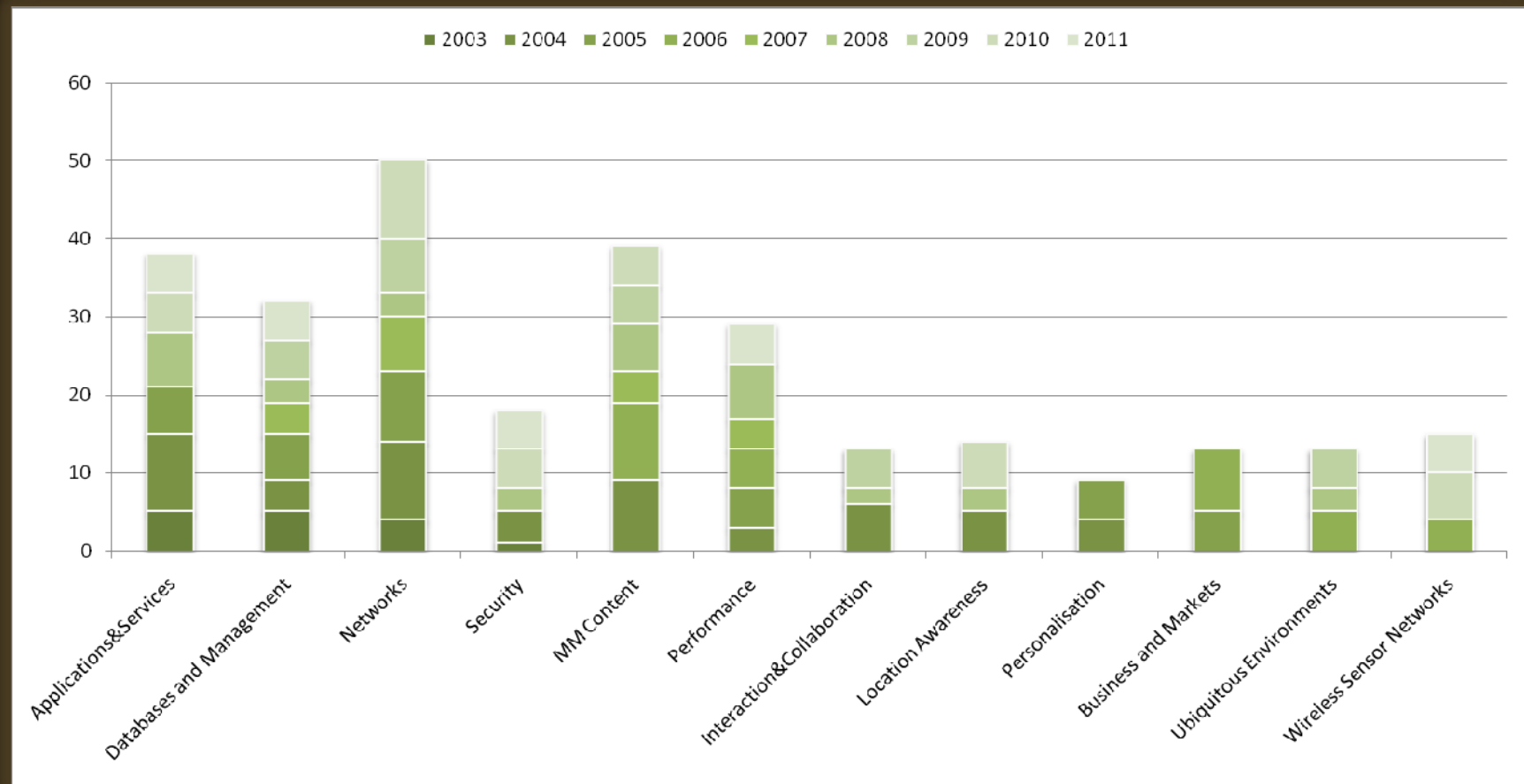
Average Number of Authors



MoMM Community



MoMM Topics



MM in the Future

- Consuming MM while on the move ...



Research on
public displays,
attention,
ubiquitous
multimedia

MM in the Future: Social Media Inclusion



**Egypt Shutting Down
Cell Phone Networks**

Feb 1, 2011 1:19 AM CST



MM in the Future: Social Media Inclusion



THANK YOU FOR YOUR ATTENTION!