

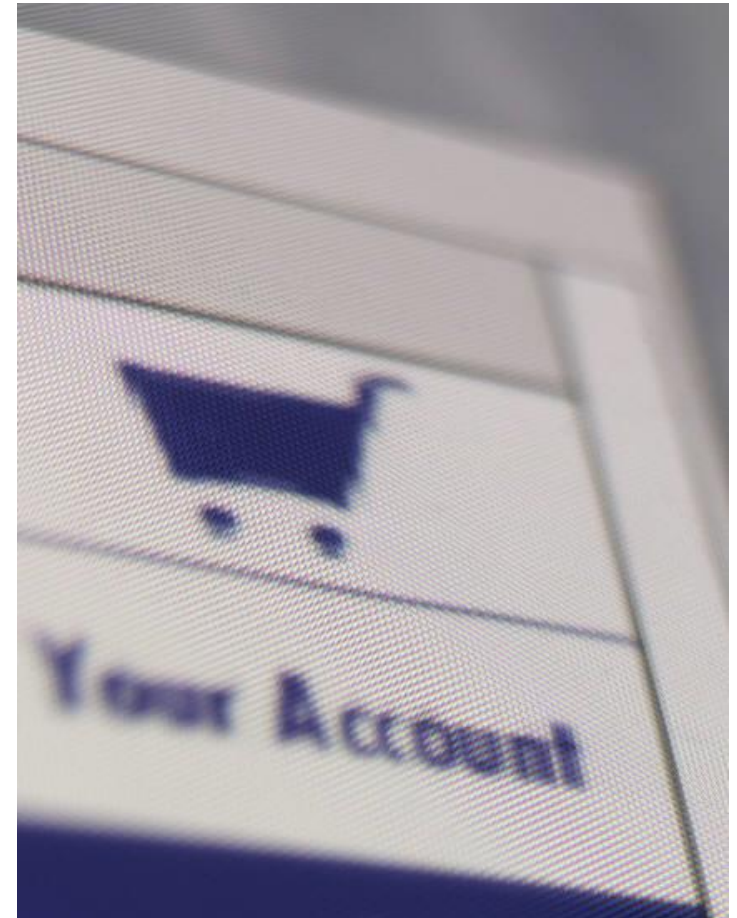
Lecture 5

Economic Basics I:
Electronic Business vs. Mobile Business

Mobile Business I (WS 2018/19)

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- Phenomenon “Mobility”
- Mobile Lifestyle and Social Phenomena
- Specifics of the Mobile Economy
- Infrastructure Environment
- Mobile Business

What is mobility?

Lat. *mobilitas*:

- (1) Flexibility, velocity, motion;
and as “*mobilitas animi*”: (mental) fitness
- (2) But also (and quite ambivalent to (1)) changeability, inconstancy,
unstableness



[SkuStowPets1998]

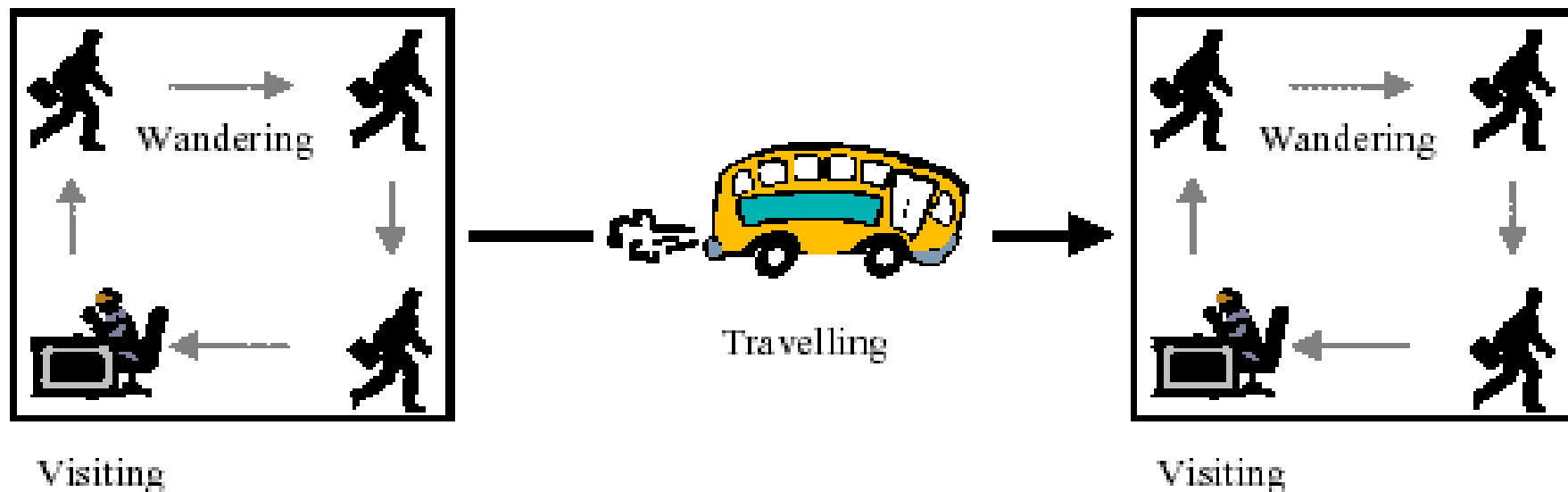
- Social implications

Mobility not just “*humans’ independence from geographical constraints*”

- Spatial Mobility
- Temporal Mobility
- Contextual Mobility

[KakihaSorens2001]

- Different degrees of mobility



[KristoLjungb1998]

- Visiting
 - Working at different places for a little longer time
 - Connectivity via network of the host or of a mobile operator
- Example:
German Parliament
- Example: Accountant
visiting a client



- Travelling
 - Working while travelling
 - Example: top management in a limousine
 - There are different technologies facilitating this in different travelling occasions (e.g. satellite connection for planes, GSM/UMTS for cars)



<http://cdn.ttgtmedia.com>

- Wandering
 - Working while being mobile “at a place or site”
 - Example: Facility-Management in an office building



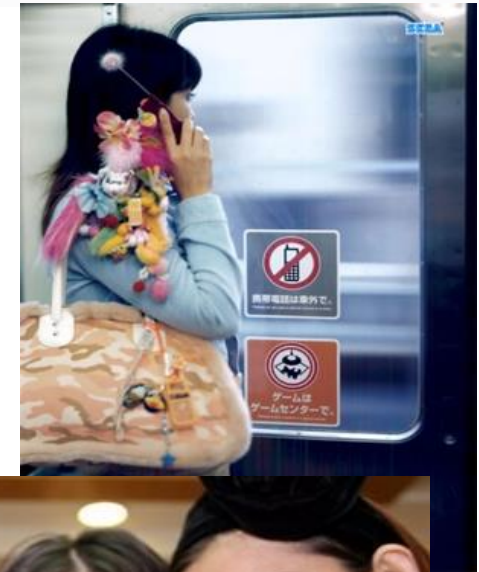
www.computerwoche.de

- Example: Midwives manage administrative tasks and billing via web apps.



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- “keitai”
- Mobile devices are becoming a “cult”:
- The way people communicate
- The way mobile phones are integrated into normal life
- The importance of mobile communications



- ... but not only in Japan.



- Society Approach: Smart Mobs
 - *“Smart mobs consist of people who are able to coordinate even if they don’t know each other.”*
[Rheingold2002]
 - Examples:
 - 2001: People Power II, Manila versus President Estrada, coordination of the rebellion through SMS
 - 2010: Arab Spring, coordination of the rebellion through SMS and Social Networks





- Example: Stalking
Transfer of VIP residences via SMS

The screenshot shows a mobile discussion group interface. At the top, there's a green banner with a money bag icon and text: "Now every time you invite a friend to any of your Groups or Channels, you are entered to win our monthly drawing for \$500!". Below this, the group name "Anywhere everywhere celebs" is circled in pink. To the right of the name is a "JOIN THIS GROUP NOW" button. The group details include: "handle: anyeverywher", "#members: 62", "type: public", "allows voice", "who can send msgs: All", "who can invite: All", "founder: flyrah", and "since: Jan 16, 2001". The description reads: "Forget about celeb sightings in certain cities! If you know of any place or destination that a celeb is or where they will be, drop in or drop a line." Below the description, there's a section with a mobile phone icon and text: "This is a mobile discussion group for your phone. Once you join, you'll get the messages on your phone, and be able to send;". On the right side, there's a vertical sidebar with a mobile phone icon and text: "Sign up for the official JENNIFER LOPEZ UPOC channel!", and another section with text: "Find the Upoc group that is right for you!".

- People and groups expose themselves, e.g. via “selfies”.



- *Phone + Snubbing = “Phubbing”*



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What are the characteristics of the Mobile Economy?

	Electronic Economy	Mobile Economy
Automation / digitization	●	●
Time flexibility	●	●
Interactivity	●	●
Individualization	●	●
Location independence		●
Personal sphere	○	●
Continuous reachability		●
Context sensitivity	○	●

- Automation / digitization
 - Value proposition of Internet services is provided electronically (digital)
- Time flexibility
 - Internet services are accessible 24 hours per day
- Interactivity
 - Users are integrated into the provision of Internet services
- Individualization
 - Personalisation of Internet services according to individual user preferences

- Location independence
 - Provision of mobile services is independent of a user's current location
 - Examples
 - o Mobile E-Mail Services
 - o Mobile Information Services
 - o Mobile Sales Force Services
 - o ...

- Personal sphere
 - Mobile devices (“Mobiles”) as personal accessories
 - o Mobile device is part of a user’s personal sphere such as keys, data books, clothes, etc.
 - o Users carry mobile devices with them most of time.

- Continuous reachability
 - Location independent network access
 - Users are instantly addressable
 - Always-on-Functionality

- Context sensitivity
(Detection and evaluation user's environment information)
 - **Local context**
(user's current place / time)
 - **Action context**
(user's current place / time combined with geo data)
 - **Time context**
(user's current time combined with time relevant information)
 - **Interests specific context**
(local, action and time context combined with personal user preferences)

- Additional market-driven specifics
 - High penetration of mobile devices in society:
 - 6,8 billion mobile cellular subscriptions worldwide in 2012 (world population: 7,1 billion people)
 - 2,096 million users had access via mobile broadband in 2012
[ITU2013]
 - 115 million mobile phone contracts in Germany in 2012
[BITKOM2013]
 - “Everybody” is reachable via mobile phones.

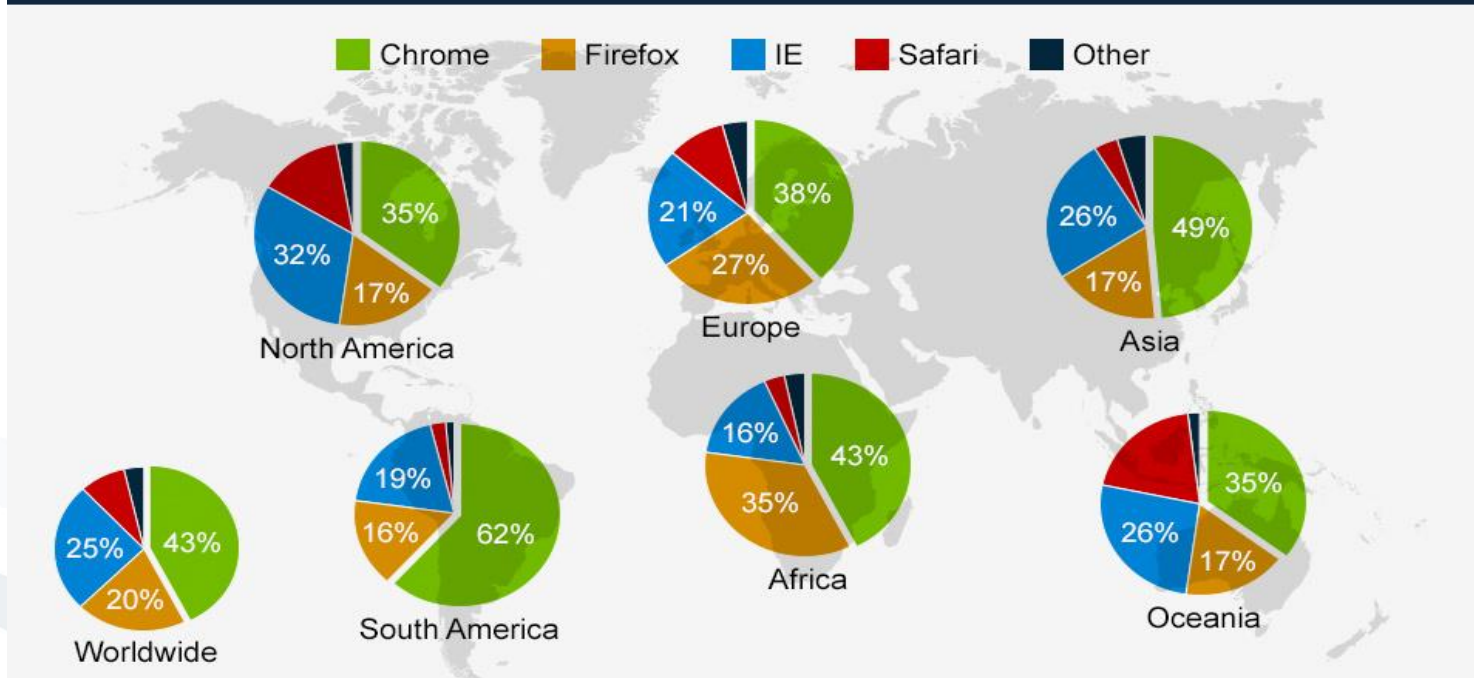
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Technology	PC	Mobile
Device	Desktop, Laptop	Smartphones, Tablets, Pagers
Operating System	Windows, Unix, Linux, MacOS	Android, iOS, BlackBerry OS, Symbian, Windows Phone
Presentation Standards	HTML	HTML, WML, HDML, i-Mode
Browser	Chrome, Microsoft Explorer, Firefox, Safari, Micosoft Edge	Chrome, Microsoft Explorer, Safari (iPhone), Nokia browser, UC browser, Opera Mini, other mobile browsers

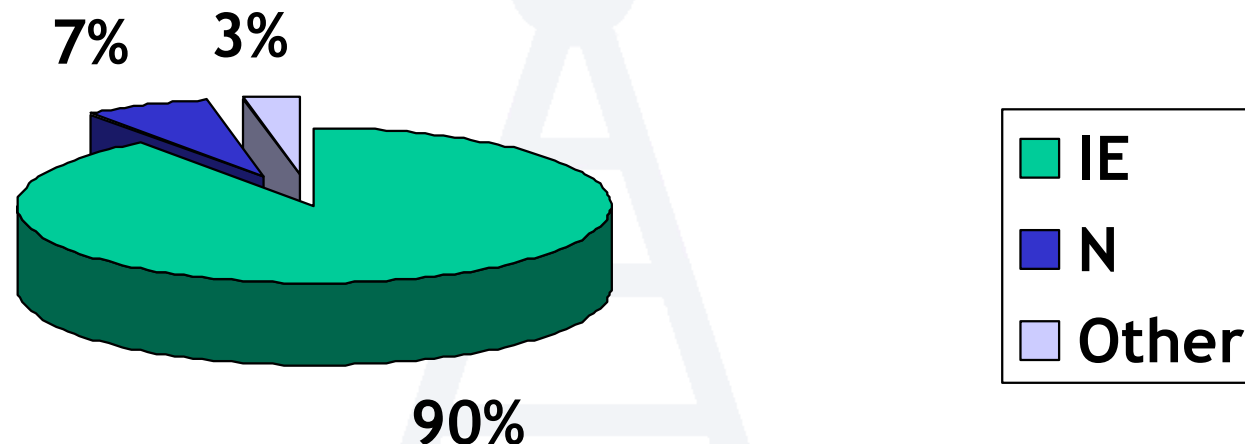
- Electronic World: Few types of “access paths” to the homepage

Google Chrome Leaves Competition in the Dust

Global market share of web browsers in June 2013

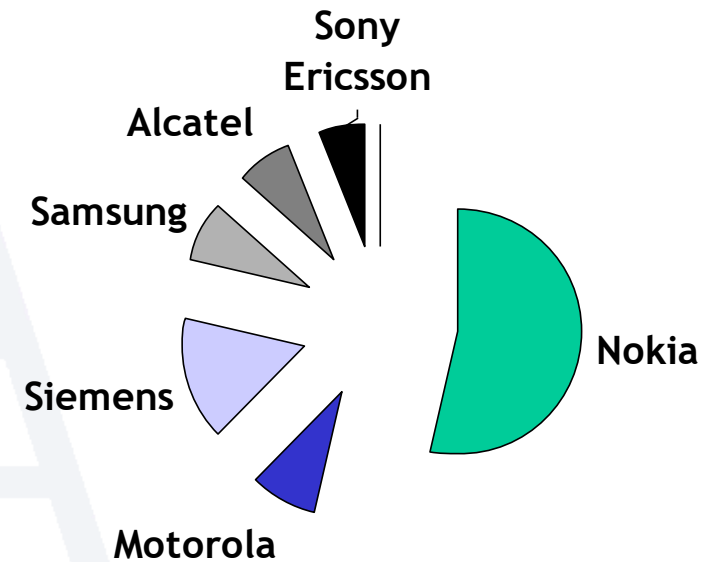
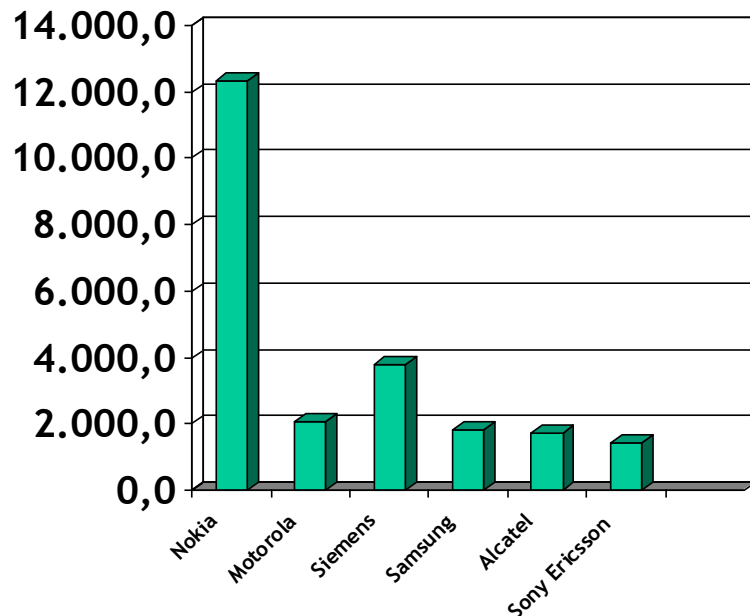


- eWelt: Wenige „Typen“ von Zugangswegen zur Homepage



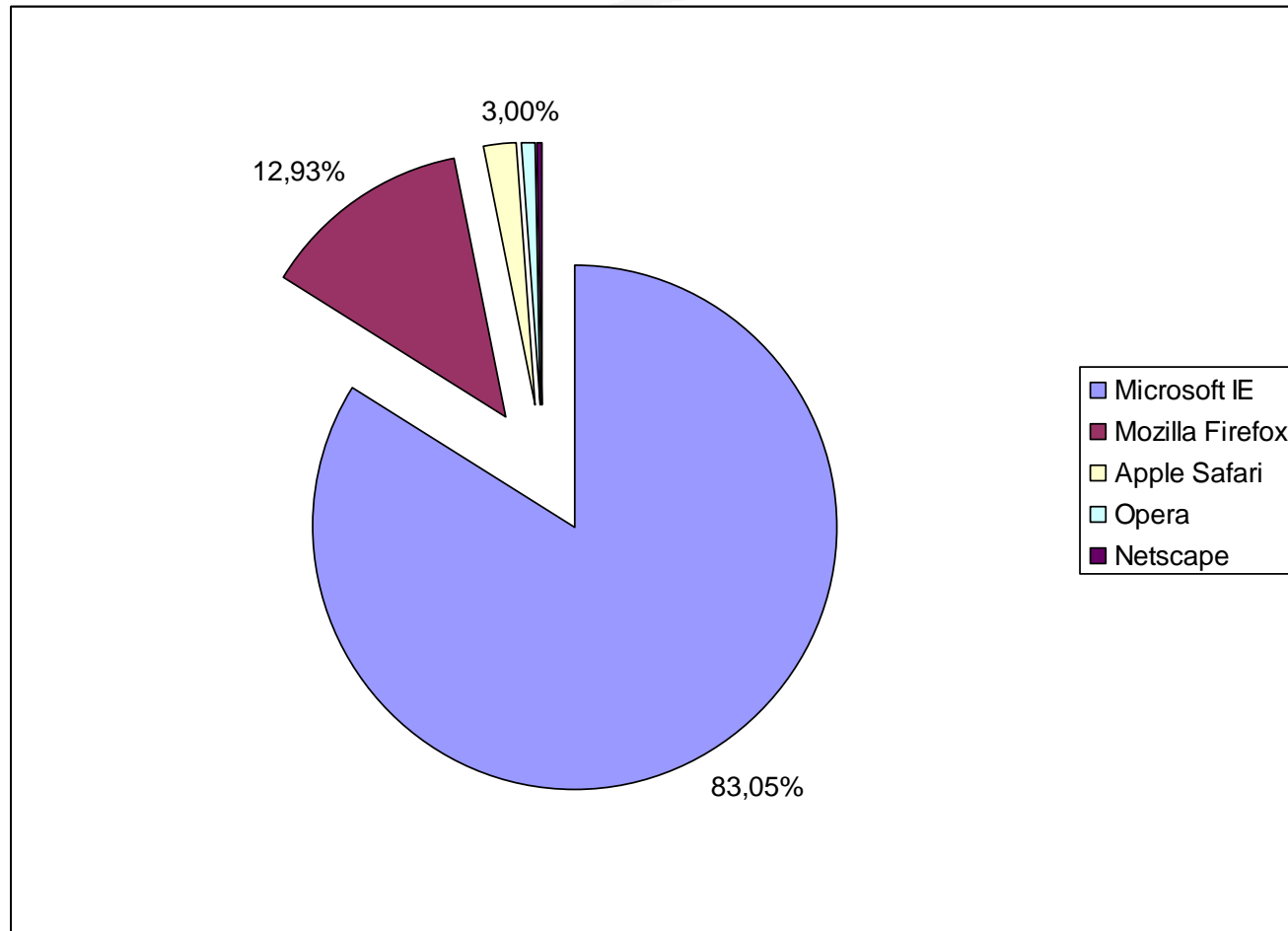
- mWelt: Viele Typen von „Zugangswegen“ zur Homepage

Anzahl verkaufter Telefone in Europa, Quartal 3, 2002



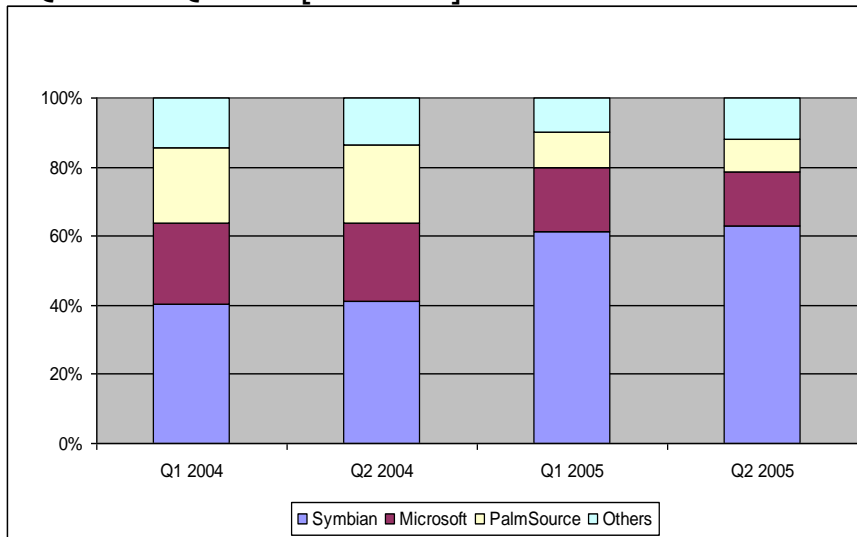
Infrastructure Environment

- eWorld: Few types of “access paths” to the homepage

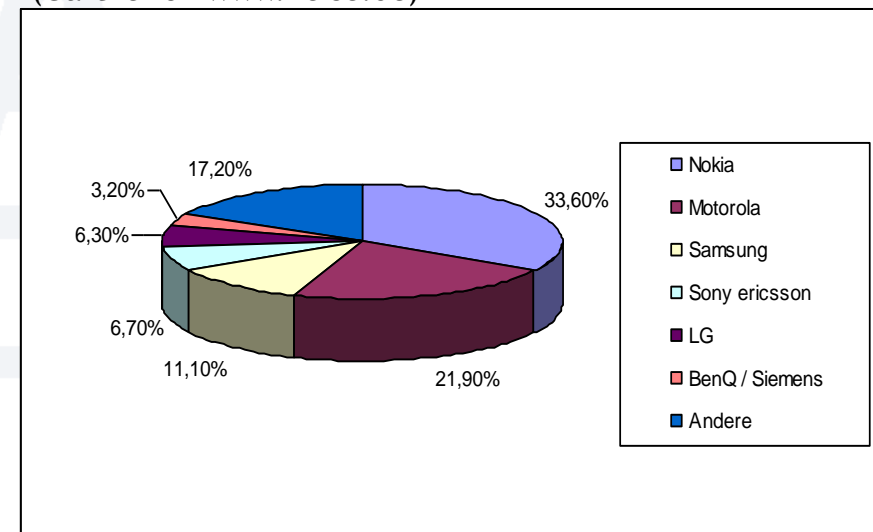


- mWorld: many types of “access paths” (platforms) to the homepage
 - Market distribution of types of access paths difficult to assess due to lack of specific statistics
 - Some information can be derived from interpreting related statistics

Market shares by operating systems worldwide, Q1 2004 - Q2 2005 [Gart 2006]



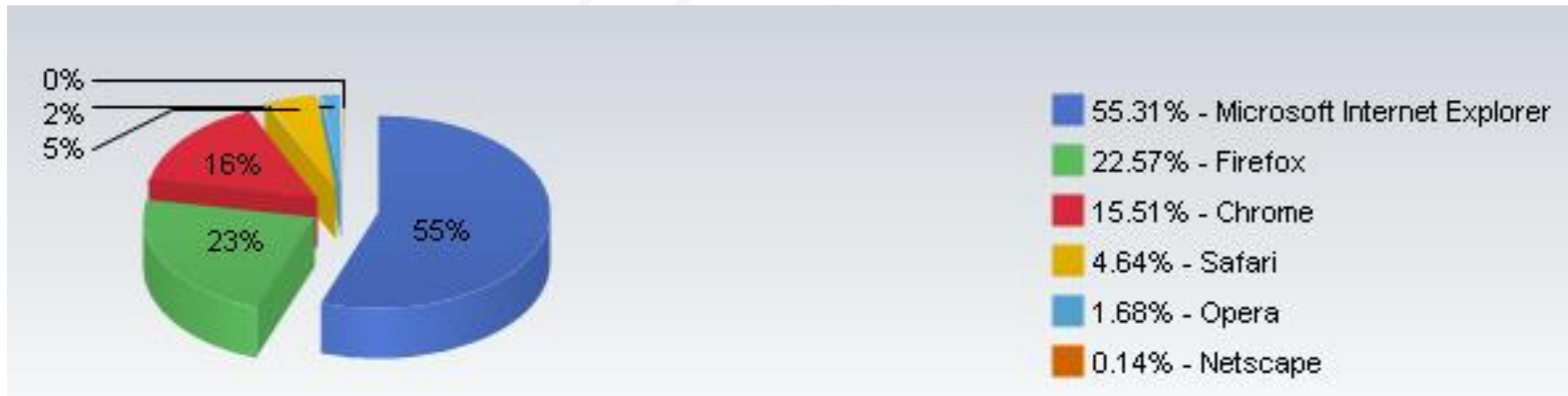
Market share of sold telephones worldwide, 2/2006 (Gartner on www.heise.de)



Infrastructure Environment

- Electronic World: Few types of “access paths” to the homepage

August 2011

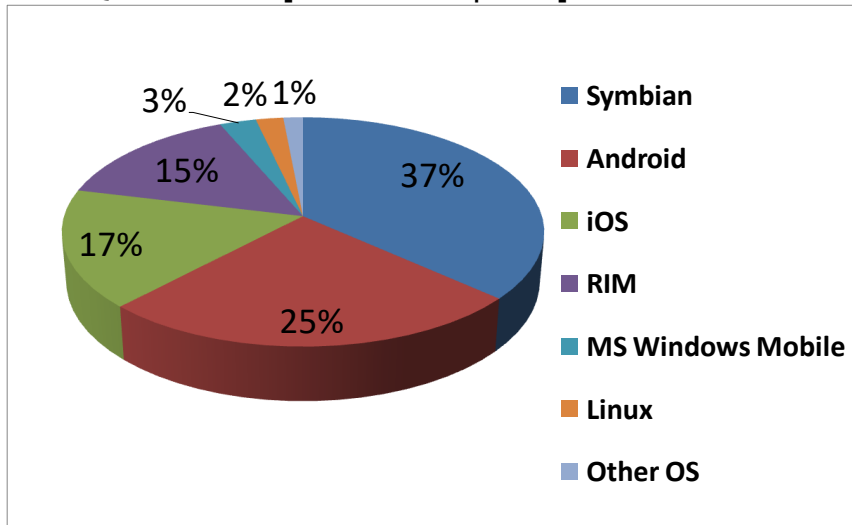


[NetMarketShare2011]

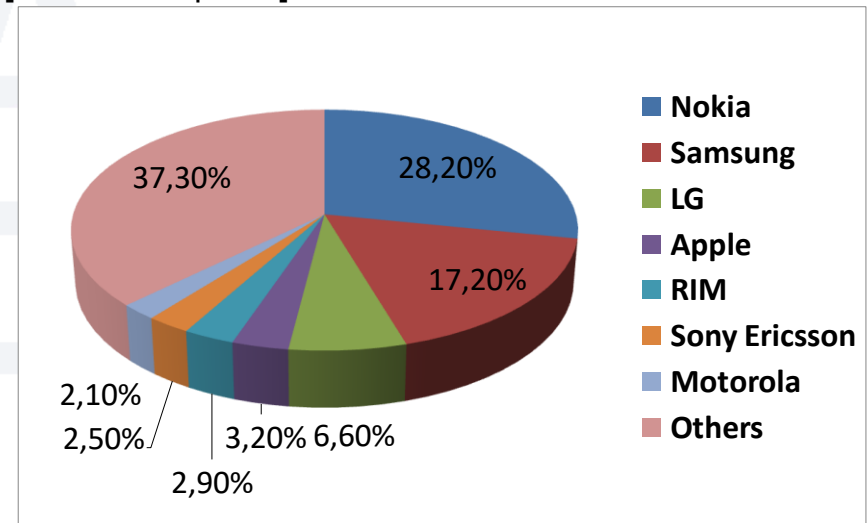
Infrastructure Environment

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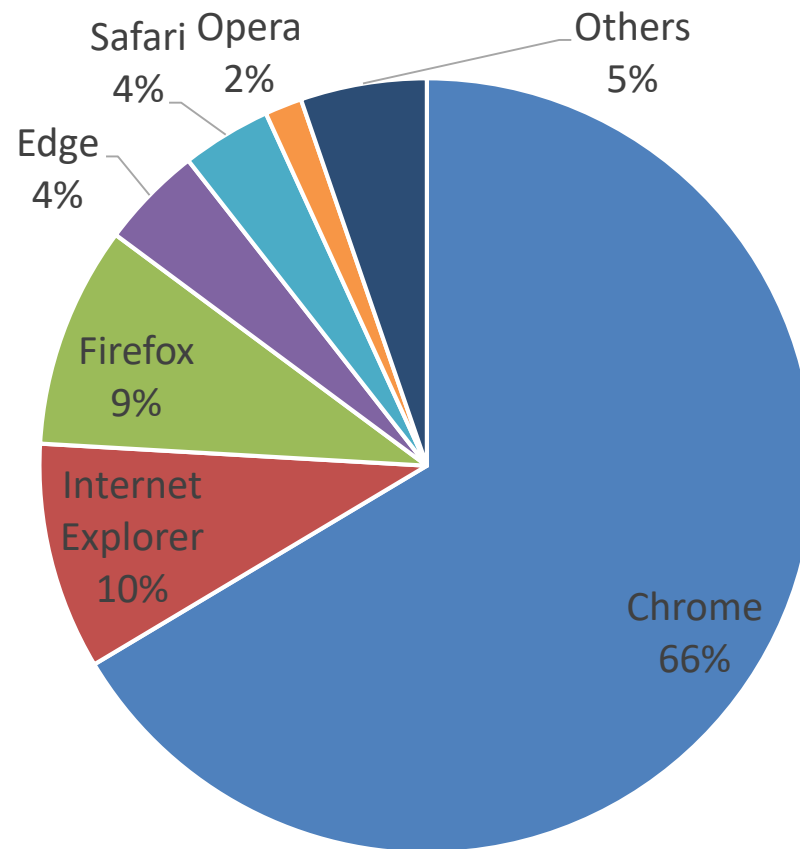
Market shares by operating systems worldwide, 3rd Quarter 2010 [GartnerGroup2011]



Market share of sold telephones worldwide, 3rd Quarter 2010 [GartnerGroup2011]

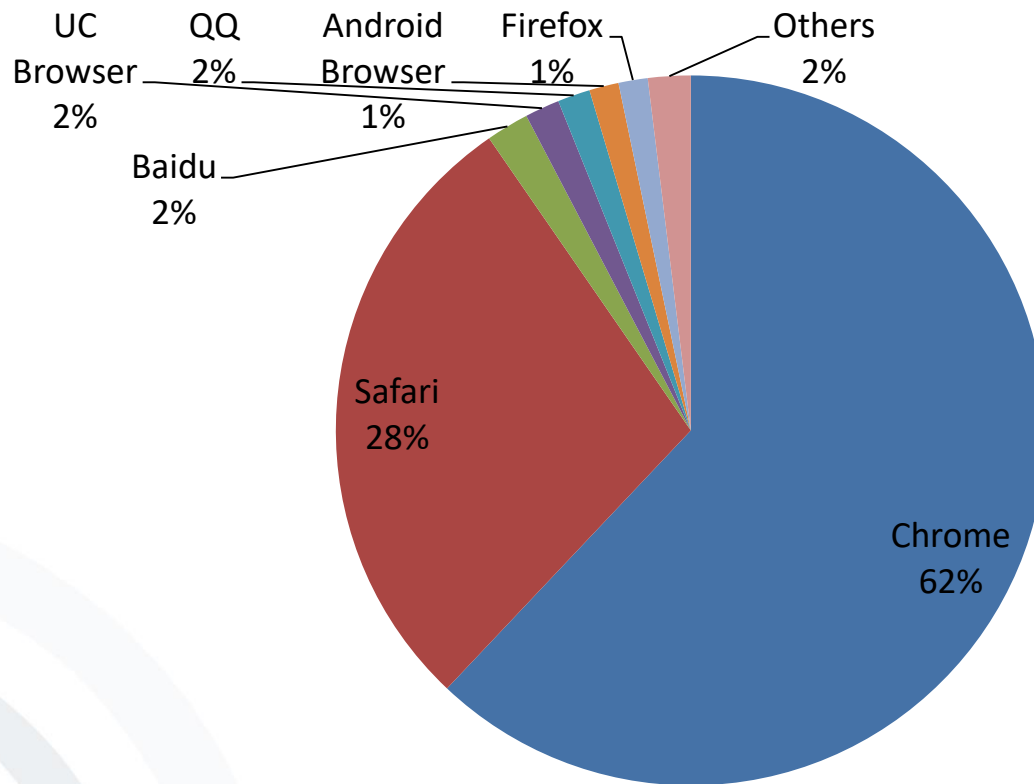


- Electronic World (desktop PC): Few types of “access paths” to the homepage ?



October 2018

- Mobile World (mobile + tablet): Many types of “access paths” (platforms) to the homepage?







October 2018

- The variety of mobile terminals and wireless transmission technologies requires an intelligent Multi Channel Management.
- Critical parameters of the Multi Channel Management:
 - *Display characteristics*
 - *Transfer speed*



Multi Channel Management of mobile applications becomes increasingly complex.

Multimedia Content	Bearer Service	User Agent	
WBMP Images	CSD	WAP Browser	
Color Images	GPRS	HTML Browser	
Multimedia Streams	UMTS	HTML Browser	
Video Telephony	LTE	Apps	

[Example Multi Channel Management Scenarios]

- User Agent Detection can be implemented by the providers of mobile applications.



- Only network operators can identify the data transfer services used by the user (bearer detection).



Consequence:

- Higher planning uncertainties in the “Mobile World”
- Higher costs through multi-optimizing in the “Mobile World”
- Mobile Access depends on location (city / countryside)

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Various Electronic Business (E-Business) definitions...

“E-Business: Doing business online.” [TechwebNetwo2013]

“E-Business is about business transformation, changing the way companies go to market, impacting what they sell and how they create value.”
[Kortzfleisch2005]

“E-Business... the conduct of business on the Internet, not only buying and selling but also servicing customers and collaborating with business partners.” [Searchcio2007]

“using the internet to connect with customers, partners, and suppliers”

...

Many definitions of Mobile Business (M-Business)...

“**M-Business:** Doing business using wireless services. The mobile counterpart to E-Business.” [TechwebNetwo2013]

“The total sum of business processes based on location-independent interactive communication technologies.” [ReicMeieFrem2002]

“We define M-Business as a collection of mobile technologies and applications used to support processes, value chains and entire markets using wireless technology.” [Stanoevska-S2003]

...

We chose a definition that (hopefully) lets us do interesting things:

*“The usage of
mobile devices, infrastructure,
communication, and interaction
for
mobile applications
and transactions.”*

		<i>Service user</i>		
		Consumer	Business	Administration
<i>Service provider</i>	Consumer	Consumer-to-Consumer	Consumer-to-Business	Consumer-to-Administration
	Business	Business-to-Consumer	Business-to-Business	Business-to-Administration
	Administration	Administration-to-Consumer	Administration-to-Business	Administration-to-Administration

- In terms of electronic communication, M-Business is a specific part of E-Business, but ...
 - for M-Business services a more complex, sophisticated infrastructure environment is required.
 - M-Business services have to deal with several technical limitations (e.g. bandwidth, screen size of device, etc.).
- Specifics of the Mobile Economy enable the provision of unique M-Business services (distinct from E-Business services).
 - e.g. Location-Based Services or Mobile Brokerage
 - See also lecture „M-Business behavioural issues“
- Addressing the issues of the mobile infrastructure environment while taking advantage of the Mobile Economy specifics is the challenge for the successful provision of M-Business services.

- Convergence of Mobile and Fixed Networks:

- Deutsche Telekom reintegrated T-Mobile.
- Vodafone reintegrated Arcor and bought Kabel Deutschland and ONO.
- O₂ (Telefónica) bought HanseNet.
- ...



→ Will E-Business and M-Business converge?

- [BITKOM2013] BITKOM - Bundesverband Informationswirtschaft, Telekommunikation und neue Medien e.V., http://www.bitkom.org/de/markt_statistik/64046_73079.aspx, accessed 2013-10-08
- [GartnerGroup2013] Gartner Group, <http://www.gartner.com/newsroom/id/2573415>, accessed 2013-10-08.
- [HerrmaSauter1999] Herrmanns, A./ Sauter, M.: Electronic Commerce. (Hrsg.), Wiesbaden 1999, 229-243.
- [Ishi2004] Ishi, K.: Internet use via mobile phone in Japan. Telecommunications Policy 2004, Vol. 28, pp. 43-58.
- [ITU2013] International Telecommunication Union, http://www.itu.int/ITU-D/ict/statistics/at_glance/KeyTelecom.html, accessed 2011-09-14
- [KakihaSorens2001] Kakiyama, M./ Sørensen, C.: Expanding the 'Mobility' Concept, in: SIGGROUP Bulletin, December 2001/Vol 22, No. 3.
- [Katz2006] Katz, J.E. & Sugiyama, S.: Mobile Phones as Fashion Statements: Evidence from Student Surveys in the US and Japan". *New Media & Society*, 8(2), pp. 337, 2006.
- [Kortzfleisch2005] Kortzfleisch, Harald F.O.: E-Business und organisatorische Veränderungen. EUL Verlag, Köln, 2005.
- [KristoLjungb1998] Kristoffersen, S./ Ljungberg, F.: Your mobile computer is a stationary computer, Viktoria Research Institute, Gothenburg, Sweden 1998, www.teco.edu/hcsw/sub/110.Ljungberg/CSCW98.html, accessed 2013-10-08
- [LuffHeath1998] Luff, P. / Heath, C.: Computer Supported Cooperative Work, in: Proceedings of the 1998 ACM conference on Computer supported cooperative work, 1998.
- [NetMarketShare2011] Net Market Share: Browser Market Share November 2012, <http://www.netmarketshare.com/browser-market-share.aspx?qprid=1>, accessed 2013-10-08.
- [NetMarketShare2018a] Net Market Share: Desktop Browser Market Share October 2018, <https://www.netmarketshare.com/browser-market-share.aspx?options=%7B%22filter%22%3A%7B%22%24and%22%3A%5B%7B%22deviceType%22%3A%7B%22%24in%22%3A%5B%22Desktop%22Flaptop%22%5D%7D%7D%5D%7D%2C%22dateLabel%22%3A%22Custom%22%2C%22attributes%22%3A%22share%22%2C%22group%22%3A%22browser%22%2C%22sort%22%3A%7B%22share%22%3A-1%7D%2C%22id%22%3A%22browsersDesktop%22%2C%22dateInterval%22%3A%22Monthly%22%2C%22dateStart%22%3A%222018-10%22%2C%22dateEnd%22%3A%222018-10%22%2C%22segments%22%3A%22-1000%22%7D>, accessed 2018-11-05.
- [NetMarketShare2018b] Net Market Share: Mobile and Tablet Browser Market Share October 2018, <https://www.netmarketshare.com/browser-market-share.aspx?options=%7B%22filter%22%3A%7B%22%24and%22%3A%5B%7B%22deviceType%22%3A%7B%22%24in%22%3A%5B%22Mobile%22%2C%22Tablet%22%5D%7D%7D%5D%7D%2C%22dateLabel%22%3A%22Custom%22%2C%22attributes%22%3A%22share%22%2C%22group%22%3A%22browser%22%2C%22sort%22%3A%7B%22share%22%3A-1%7D%2C%22id%22%3A%22browsersMobile%22%2C%22dateInterval%22%3A%22Monthly%22%2C%22dateStart%22%3A%222018-10%22%2C%22dateEnd%22%3A%222018-10%22%2C%22segments%22%3A%22-1000%22%7D>, accessed 2018-11-05.

[NetMarketShare2018b] Net Market Share: Mobile and Tablet Browser Market Share October 2018, <https://www.netmarketshare.com/browser-market-share.aspx?options=%7B%22filter%22%3A%7B%22%24and%22%3A%5B%7B%22deviceType%22%3A%7B%22%24in%22%3A%5B%22Mobile%22%2C%22Tablet%22%5D%7D%7D%5D%7D%2C%22dateLabel%22%3A%22Custom%22%2C%22attributes%22%3A%22share%22%2C%22group%22%3A%22browser%22%2C%22sort%22%3A%7B%22share%22%3A-1%7D%2C%22id%22%3A%22browsersMobile%22%2C%22dateInterval%22%3A%22Monthly%22%2C%22dateStart%22%3A%222018-10%22%2C%22dateEnd%22%3A%222018-10%22%2C%22segments%22%3A%22-1000%22%7D>, accessed 2018-11-05.

[NetMarketShare2011] Net Market Share: Browser Market Share November 2012, <http://www.netmarketshare.com/browser-market-share.aspx?qprid=1>, accessed 2013-10-08.

[Passerini2004] Passerini, K. et al.: Opportunities in the digital economy: a new value chain and services for mobile telecom operators; in: Proceedings of the Tenth Americas Conference on Information Systems, New York, New York, August 2004.

[ReicMeieFrem2002] Reichwald; Meier; Fremuth: Die Mobile Ökonomie - Definition und Spezifika, in: Mobile Kommunikation, Gabler, Wiesbaden 2002, 4-15.

[Rheingold2002] Rheingold, H.: Smart Mobs - The Next Social Revolution, 2002.

[Searchcio2007] SearchCIO: <http://www.searchcio.com>, accessed 2007-09-29

[ShapirVarian1998] Shapiro/Varian: Information Rules, Harvard Business Press 1998, pp. 13-15.

[SkutStowPets1998] Skutsch, F; Stowasser, J.M.; Petschenig M.: Stowasser. Lateinisch-Deutsches Wörterbuch, 1998.

[Stanoevska-S2003] Stanoevska-Slabeva, K.: Towards a Reference Model for M-Commerce Applications, in: Proceedings of the 11th European Conference on Information Systems (ECIS), Naples, Italy, 2003.

[Statista2013] Statista (June 2013) <http://www.statista.com/topics/1145/internet-usage-worldwide/chart/1241/global-browser-market-share/>, accessed 2015-11-01

[Statista2015] Statista (2015) Global market share held by leading smartphone vendors / <http://www.statista.com/statistics/271496/global-market-share-held-by-smartphone-vendors-since-4th-quarter-2009/>, accessed 2015-09-22

[Statista2015a] Statista (2015) <http://www.statista.com/statistics/263517/market-share-held-by-mobile-internet-browsers-worldwide-since-2009/>, accessed 2015-11-01

[TechwebNetwo2013] Techweb Network, <http://www.techweb.com>, accessed 2013-10-08.