

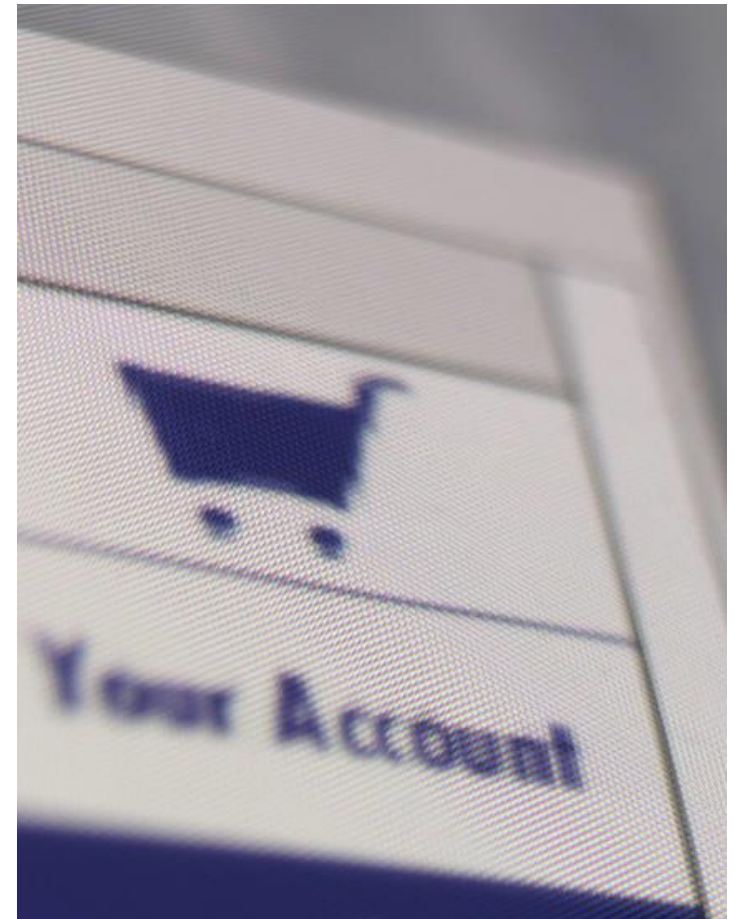
Lecture 5

Economic Basics I:
Electronic Business vs. Mobile Business

Mobile Business I (WS 2025/26)

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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

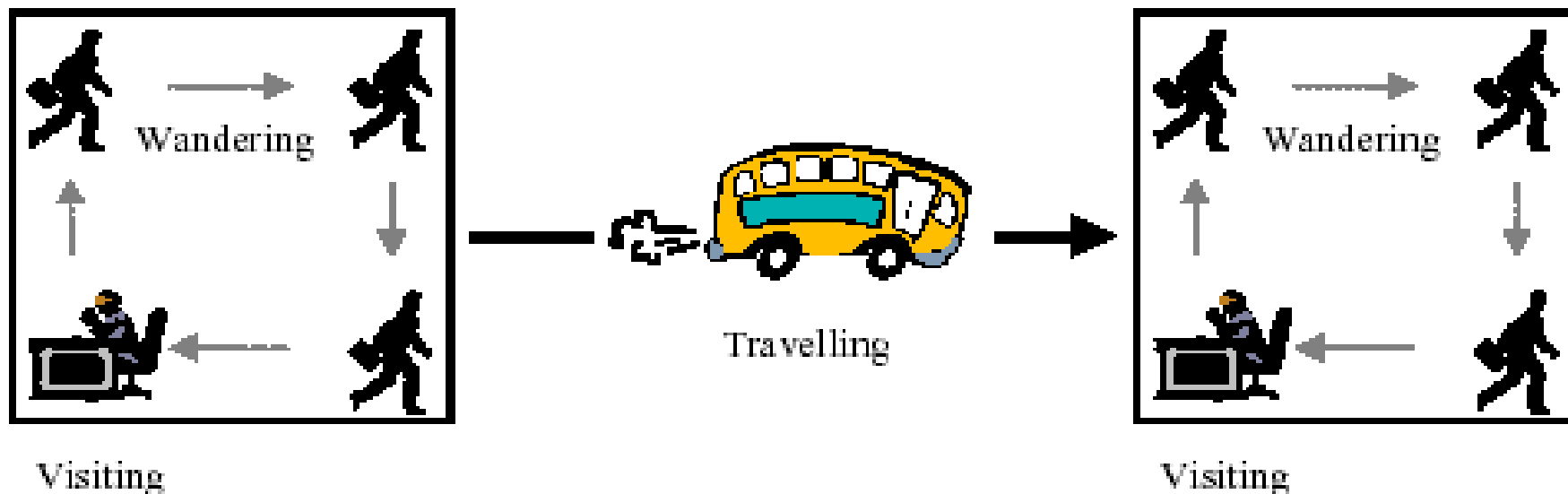
[SkuStowPets1998]

- Social implications

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

- Spatial Mobility
- Temporal Mobility
- Contextual Mobility

- 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)

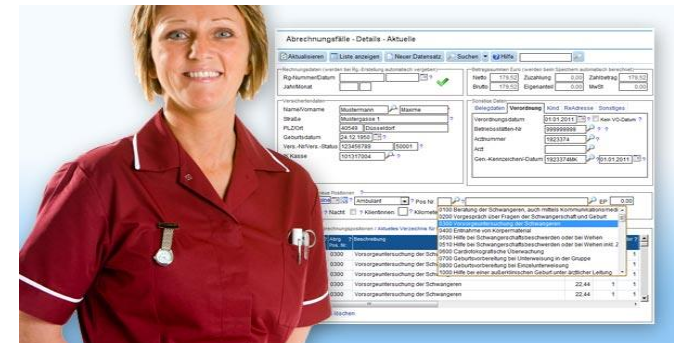


<http://cdn.ttgtmedia.com>

- Wandering
 - Working while being mobile “at a place or site”
 - Example: Facility-Management in an office building
- Example: Midwives manage administrative tasks and billing via web apps.



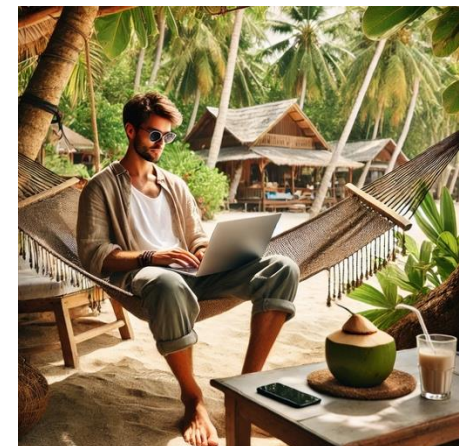
www.computerwoche.de



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- **Workation (Work+Vacation):**
 - Working in a different location/country than the dedicated work place. Employer stays the same.
 - Employers often grant up to 30 days of workation within Europe.
 - Need to consider legal and tax requirements, proper insurance as well as suitable technical setup.

- **Digital Nomad:**
 - Working from anywhere, with travel time in between.
 - Suitable for jobs that require only an internet connection: programmers, bloggers, marketing / data science manager
 - Usually self-employed and on a freelancing basis
 - Different legal and tax requirements, depending on the country of residence and length of stay



- “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



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



- Example: Pokémon Go

Large gatherings of hundreds of players to hunt for Pokémons



- *Phone + Snubbing = “Phubbing”*



- *Phone + Zombie = “Phombie”*



- **Definition:** Groups organized via mobile/social media that mobilize spontaneously for protest, awareness, or action.
- **Recent Example - Nepal 2025**
 - Gen-Z youth staged mass protests after the government banned ~26 social media platforms (Facebook, X, YouTube, etc.). [Reuter2025]
 - Demands: accountability, reversal of ban, and protection of digital freedoms. Ban was lifted after unrest. [Wikipedia2025]
- **Rights & Constraints:** Nepal's Human Rights Commission: blanket bans violate freedom of expression (UDHR, ICCPR). [KathmanduPost]
- **Critics:** such bans suppress discourse, civil society, dissent, and innovation.
- **Lessons**
 - Social media ≠ just entertainment – it can drive political mobilization and activism.
 - Digital rights must be safeguarded: balance between harm prevention (misinformation, abuse) and rights to assembly, expression, access.



- **Definition:** National regulation restricting under-16s from creating new social media accounts.
- **Recent Development - 2024/25**
 - Australia passed the *Online Safety Amendment (Social Media Minimum Age) Act 2024*.
 - Effective Dec 2025: platforms face heavy fines if they allow under-16s to register. [Headspace2024]
 - Some exemptions for educational/health apps; enforcement still debated.
- **Aim:** protect youth from online harms (bullying, addiction, harmful content). [GovAU]
- **Critics:** blunt instrument, privacy concerns (age verification), may push youth to unregulated platforms. [UQ2025]
- **Lessons**
 - Regulation reflects rising concern about mental health and online safety.
 - Raises questions about rights, privacy, and effectiveness of blanket bans in the digital age.



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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
 - Mobile E-Mail Services
 - Mobile Information Services
 - Mobile Sales Force Services
 - ...

- 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

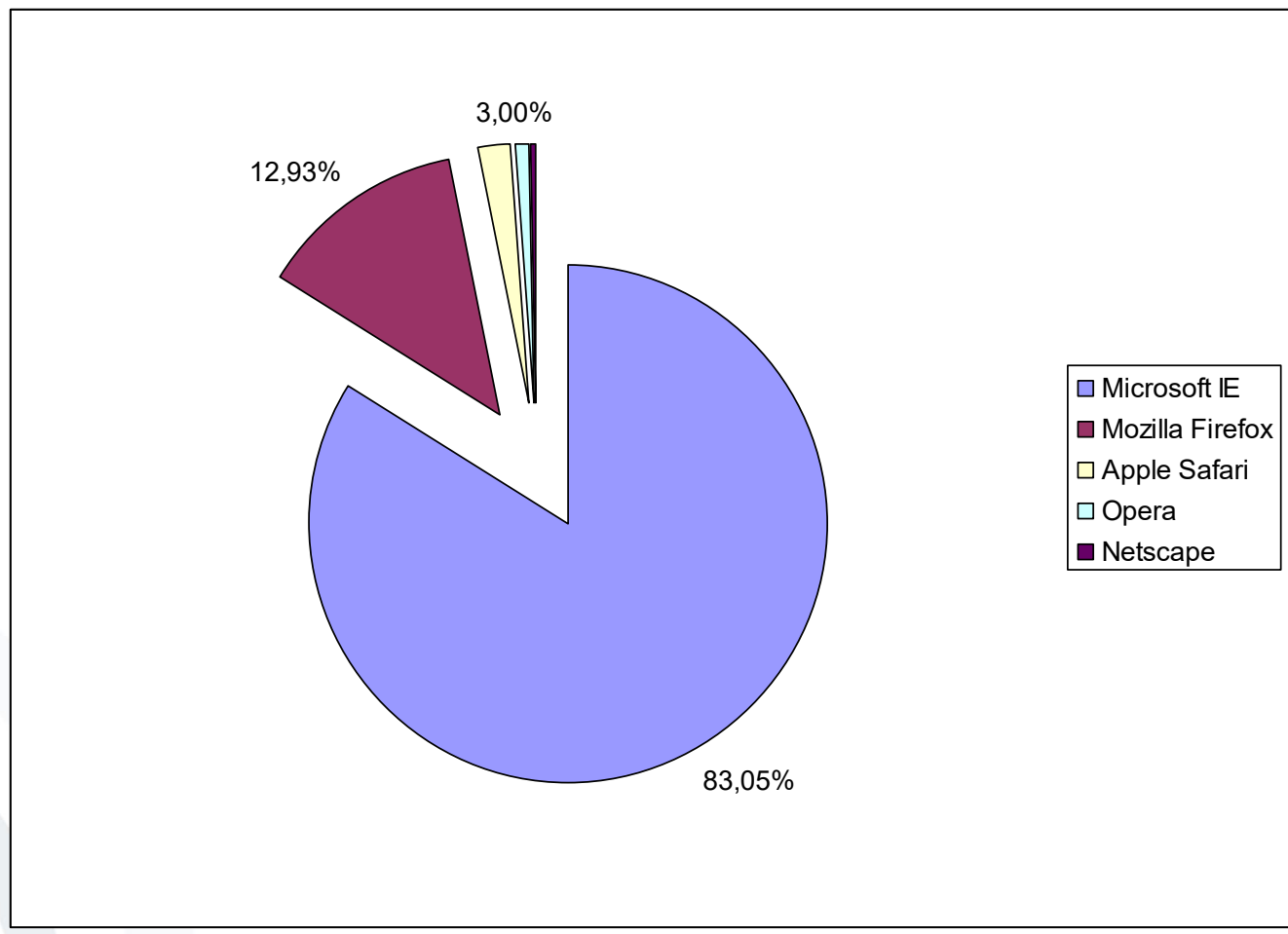
- Context sensitivity
(Detection and evaluation user's environment information)
 - **Local context**
(user's current place / time)
 - **Action context**
(user's current place / time combined with geo data)
 - **Time context**
(user's current time combined with time relevant information)
 - **Interests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

- Additional market-driven specifics
 - High penetration of mobile devices in society:
 - 9,144 billion mobile cellular subscriptions worldwide in 2024 [TradingEconomics,2024] (world population 2024: 8,17 billion people [Worldometer,2024])
 - 105.400.000 mobile subscriptions in Germany in 2023 [TradingEconomics,2024]
 - 124.7 Mobile cellular subscriptions per 100 inhabitant. [destatis 2023]
 - “Everybody” is reachable via mobile phones.

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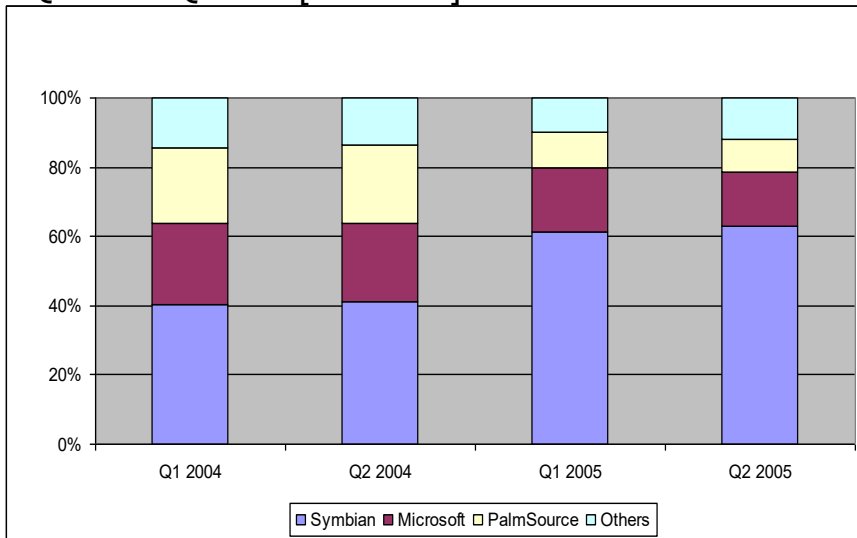
Technology	PC	Mobile
Device	Desktop, Laptop	Smartphones, Tablets, Pagers
Operating System	Windows, Linux, MacOS	Android, iOS, BlackBerry 10, Harmony OS (Huawei)
Presentation Standards	HTML5	HTML5, WML, HDML, i-Mode
Browser	Chrome, Microsoft Explorer, Firefox, Safari, Microsoft Edge	Chrome, Microsoft Explorer, Safari (iPhone), Nokia browser, UC browser, Opera Mini, other mobile browsers

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

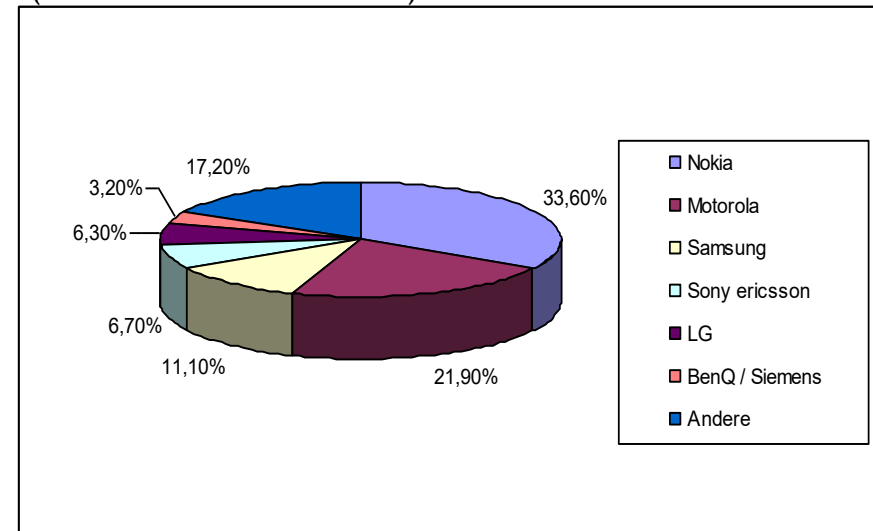


- mWorld: many types of “access paths” (platforms) to the homepage
 - Market distribution of types of access paths difficult to assess due to lack of specific statistics
 - Some information can be derived from interpreting related statistics

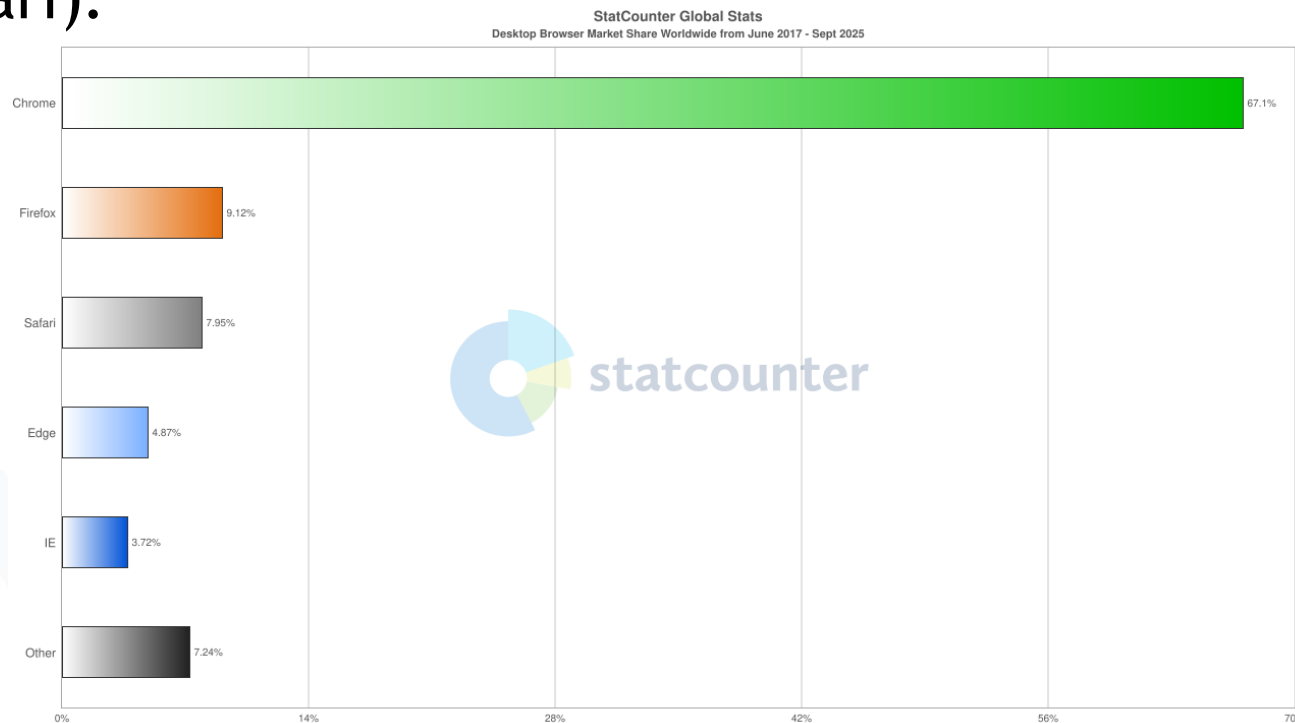
Market shares by operating systems worldwide, Q1 2004 - Q2 2005 [Gart 2006]



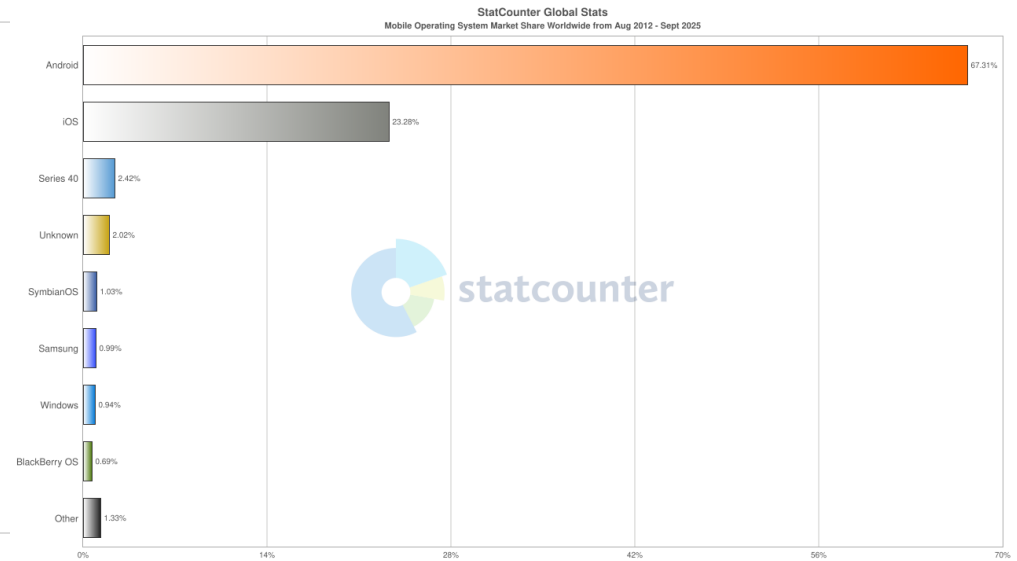
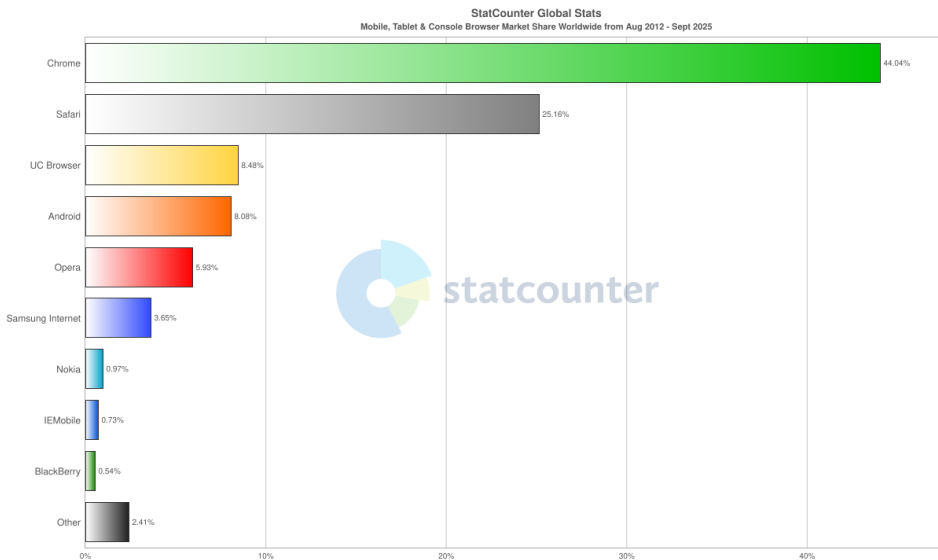
Market share of sold telephones worldwide, 2/2006 (Gartner on www.heise.de)



- Unlike 2006 (Internet Explorer dominance), today's browser market is split mainly between Google Chrome, Firefox and Apple Safari.
- From monopoly (IE) → to oligopoly (Chrome + Firefox+ Safari).

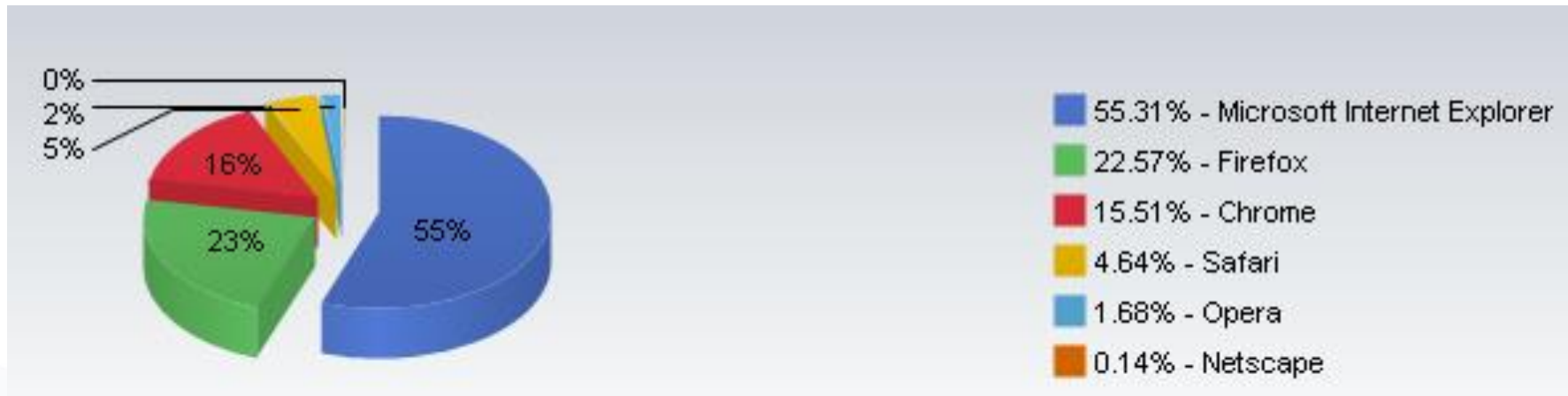


- mWorld, Unlike 2006 (fragmented market: Symbian, Palm, Microsoft, Nokia devices), today's mobile ecosystem is a **duopoly**.
- **Mobile OS:** From fragmentation (Nokia, Symbian, Palm, etc.) → to duopoly (Android + iOS).

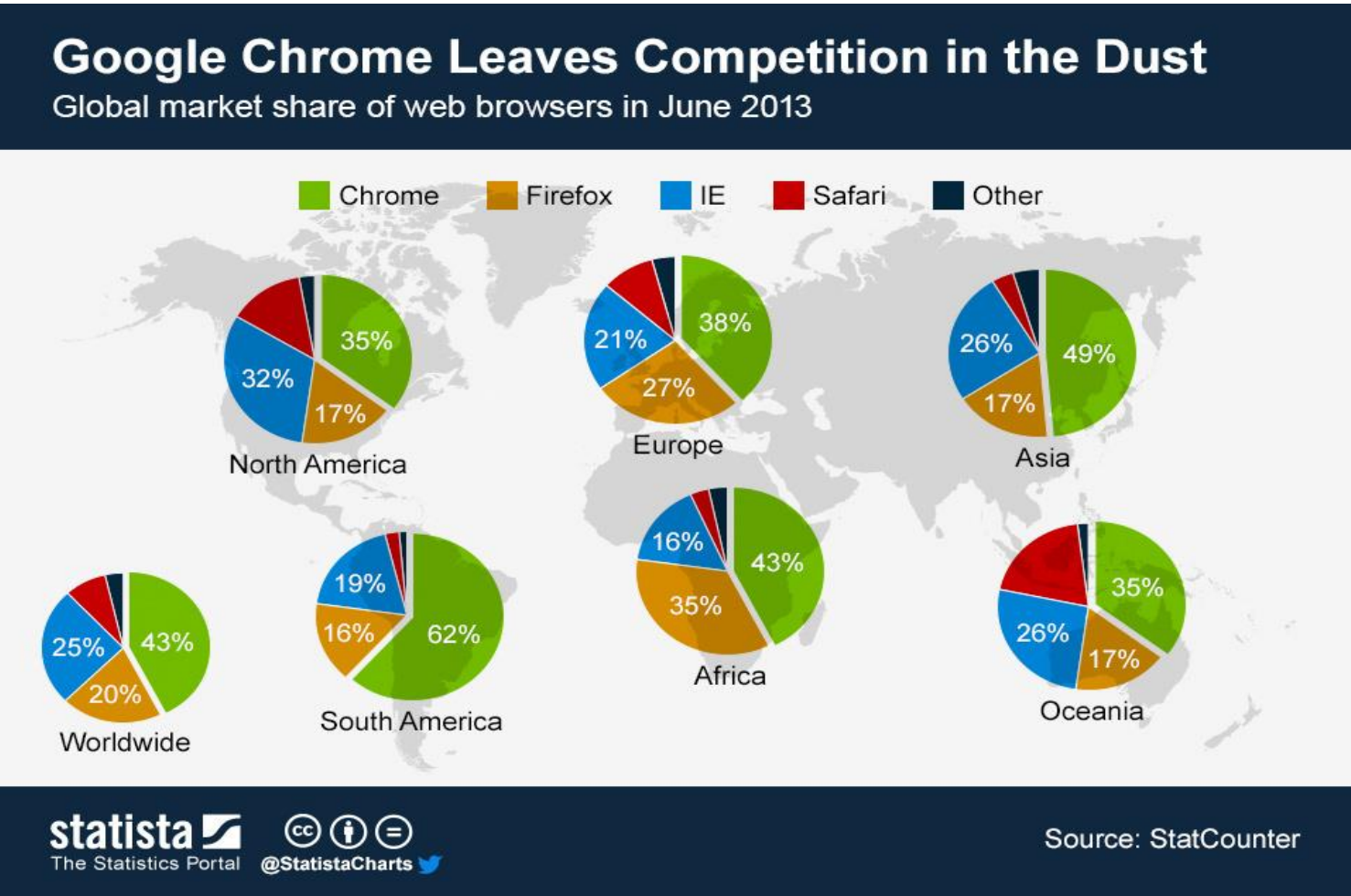


- eWorld: Few types of “access paths” to the homepage

August 2011

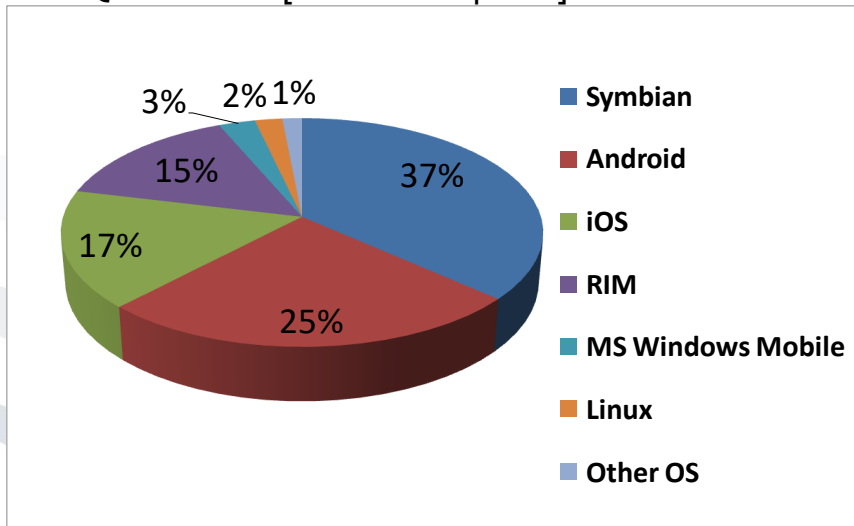


- Electronic World: Few types of “access paths” to the homepage

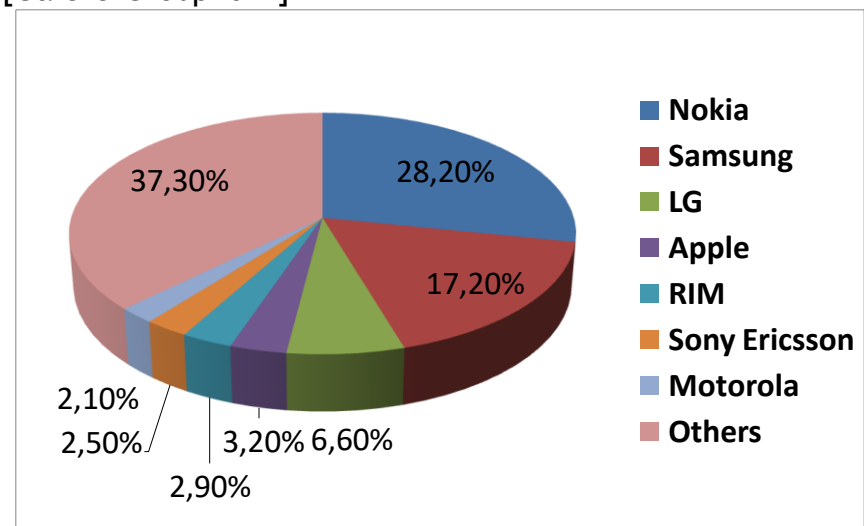


- mWorld: many types of “access paths” (platforms) to the homepage
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Market shares by operating systems worldwide, 3rd Quarter 2010 [GartnerGroup2011]

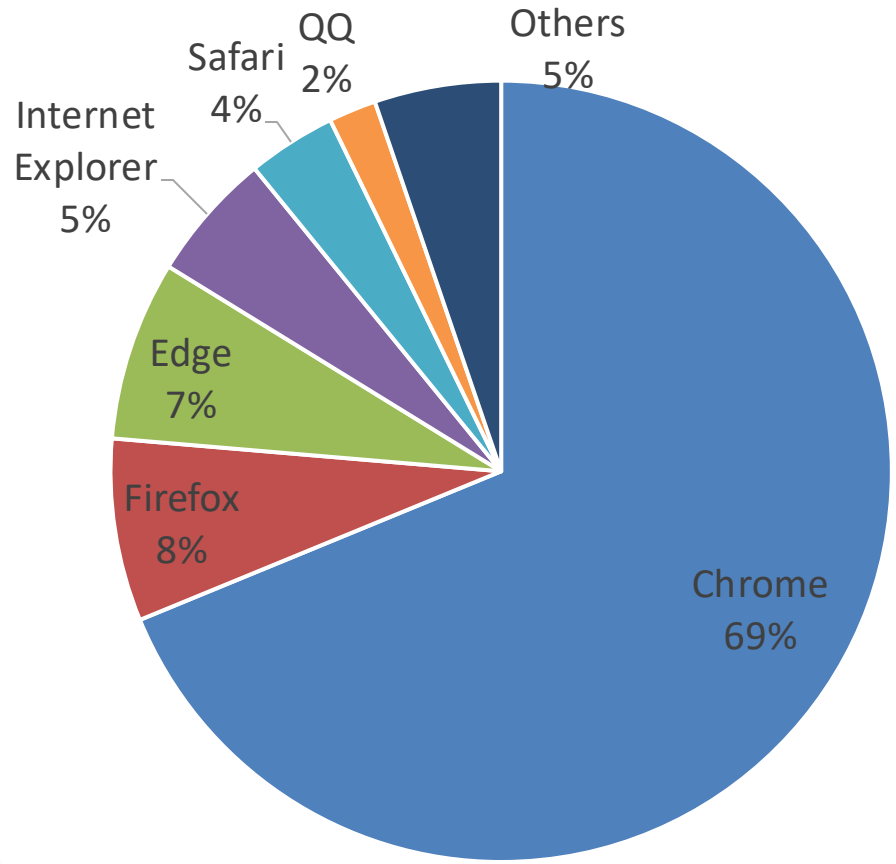


Market share of sold telephones worldwide, 3rd Quarter 2010 [GartnerGroup2011]



Infrastructure Environment 2020 (I)

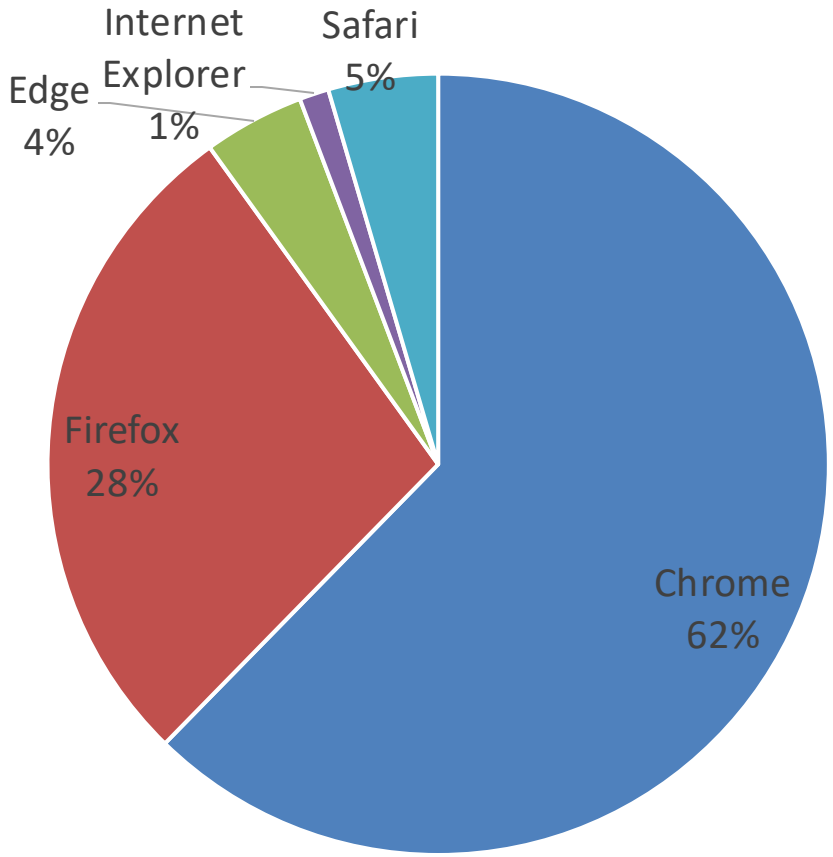
- eWorld (desktop PC): Few types of “access paths” to the homepage ?



September 2020

Infrastructure Environment 2020 (II)

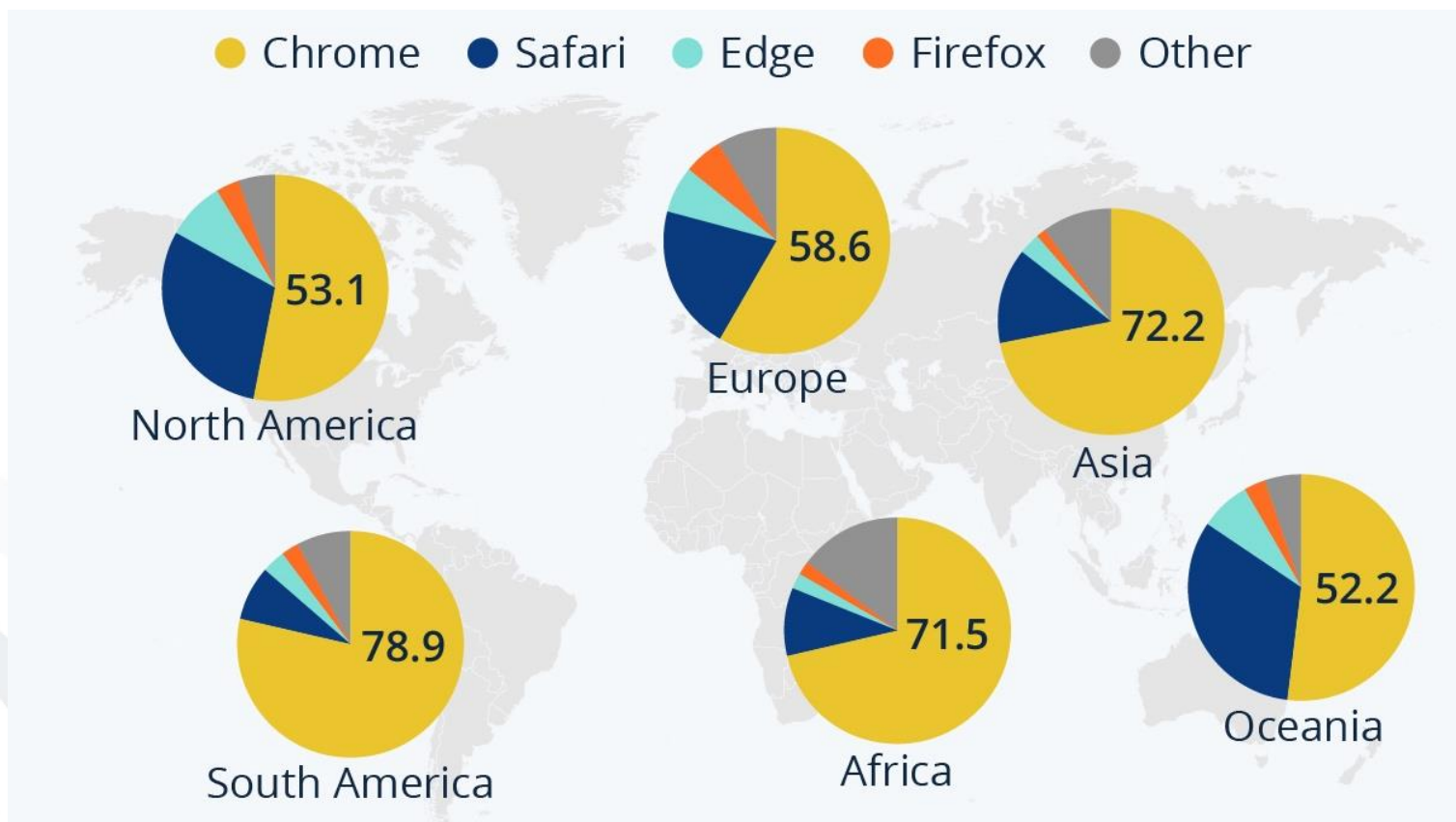
- mWorld (mobile + tablet): Many types of “access paths” (platforms) to the homepage?



September 2020





Infrastructure Environment 2023 (I)

- Browser market share in August 2023, by region, including desktop, tablet, mobile (in percent)



- The variety of mobile terminals and wireless transmission technologies requires an intelligent Multi Channel Management
→ services have to be fitted to minimal requirements (e.g. TAN 2 Go has to work with low bandwidth)
- Critical parameters of the Multi Channel Management:
 - *Display characteristics*
 - *Transfer speed*
 - *Transmission security*
 - *Transmission costs*
(SMS TAN in foreign countries)

Multi Channel Management of mobile applications becomes increasingly complex.

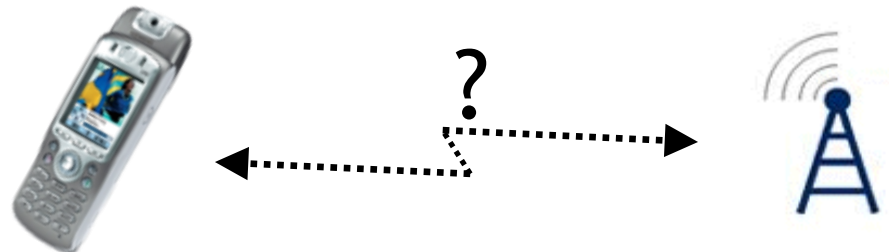
Multimedia Content	Bearer Service	User Agent	
WBMP Images	CSD	WAP Browser	
Color Images	GPRS	HTML Browser	
Multimedia Streams	UMTS	HTML Browser	
Video Telephony	LTE	Apps	

[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

Based on [HerrmaSauter1999]

		<i>Service user</i>		
		Consumer	Business	Administration
<i>Service provider</i>	Consumer	<p>Consumer-to-Consumer</p> <p>e.g. SMS, Whatsapp, Viber and other texting</p>	<p>Consumer-to-Business</p> <p>e.g. Tickets in mobile phones at ticket control (train tickets, boarding pass), Mobile QR-code payments (WeChat Pay, Apple Pay, Google Pay)</p>	<p>Consumer-to-Administration</p> <p>e.g. ID card implemented in mobile phones, EU Digital COVID Certificate, Online tax declaration apps</p>
	Business	<p>Business-to-Consumer</p> <p>e.g. downloading tunes, apps, streaming, Amazon Prime shopping app, In-app purchases in mobile games (Fortnite, Candy Crush)</p>	<p>Business-to-Business</p> <p>e.g. mobile access for management consultants at their clients' site, Microsoft Teams mobile apps, Supply chain management apps</p>	<p>Business-to-Administration</p> <p>e.g. toll collection, Digital customs clearance, E-invoicing for government contracts</p>
	Administration	<p>Administration-to-Consumer</p> <p>e.g. mobile traffic fine/ticket, Government Push alerts (disaster warnings, Amber Alerts), Digital Voting Apps (pilots in Estonia, Switzerland)</p>	<p>Administration-to-Business</p> <p>e.g. push-message on requests for bids, Digital procurement platforms (EU eTendering)</p>	<p>Administration-to-Administration</p> <p>e.g. fire brigade communication, Cross Border emergency alert system (EU -Alert), Inter-agency data sharing apps (Interpol, Europol secure comms)</p>

- 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, Unity Media and ONO.
- Telefónica (O₂) bought HanseNet.
- United Internet acquires 5G license.



→ Will E-Business and M-Business converge?

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