ILS - Research Institute for Regional and Urban Development

Associated Member of the Leibniz-Gemeinschaft




How will digital natives move – ICT and mobility behavior of young people

Swiss Mobility Conference
20th October 2016, Lausanne

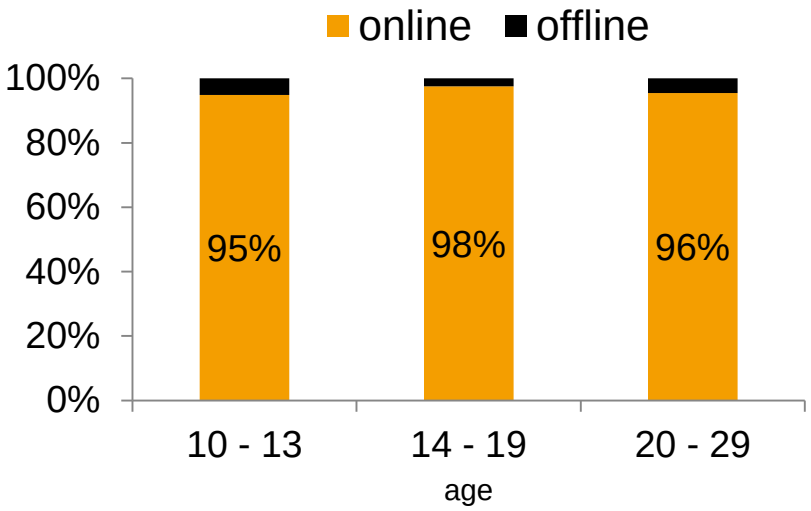
Kathrin Konrad
Dirk Wittowsky

In a digital age technical devices have the potential to optimize our physical and virtual mobility

Motivation for U.Move 2.0

Private internet penetration is approaching more and more to the full supply

Internet access



Routing

Socialising

Facts

- ICT are pervading **modern lifestyle**
- indicator of **digitalization:** the older the person, the higher the proportion of mobile devices
- **widespread use** of the internet creates excellent conditions for the use of innovative **forms of mobility**

We observed significant changes in the mobility behavior of young people

New forms of mobility

Source: urba-e.com

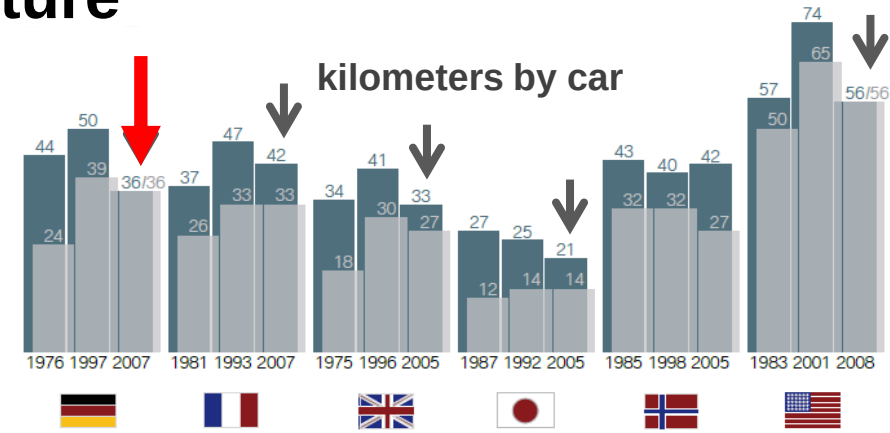
Facts

- young people have left the former **dominance** of the own car behind
- boom of **innovative** mobility services:
  - public bike- and car-sharing systems (car2go, citibike)
  - ride-sharing / ride-selling (Uber, flinc)
  - Demand Responsive Transport

We can observed a change in the mobiltiy behaviour of young people – e.g. the distance travelled decreased

Hypotheses

- there are a lot of **hypotheses** why those changes have taken place
  - change of mobility-related **attitudes**
  - changes in **biographies**
  - use of **information** and communication technologies (ICT)
  - change in transport **infrastructure**
  - realocation of mobility **budget**



Reference: Ifmo (2011)

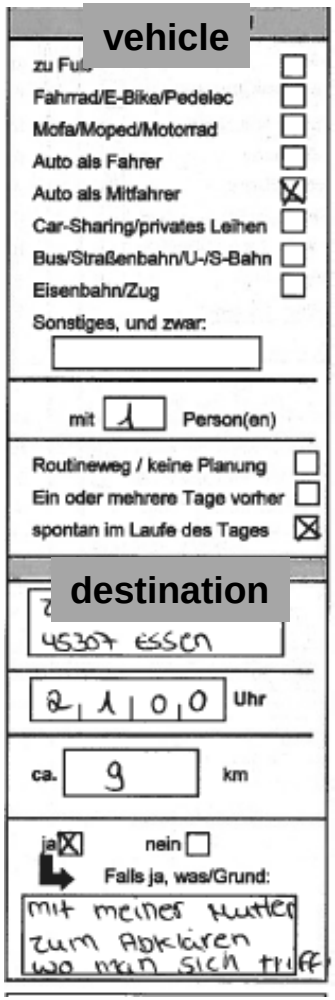
There are a vast number of studies that seek to explore and understand the relationship between ICT and physical mobility

Status Quo

digital natives	▪ first **generation** to grow up with new technology ▪ behavior changed **radically** - receive information very fast and like to do parallel activities (Prensky 2001)
substitution modification stimulation	▪ ICT **increases** the efficiency of the transportation system ▪ not all uses of ICT constitute a **replacement** of travel ▪ **paradoxical** results (Mokthariam)
fragmen-tation	▪ spatial **technologies** increases the widely observed travel demand in the industrialized world ▪ planners have **less control** than ever before on what activities take place where (and when) (Couclelis 2000)

Variety of assumptions about the link between ICT and mobility – not empirically well documented

Empirical design



additional item

(When) Did you **plan this trip**?

Did the **use of smartphone** or internet result in any modification of this trip?“

Method

- multi-level **empirical design**

Personal paper & pencil

- topic-related interviews
- classical trip diary – georeferenced
- ICT diary

Online survey

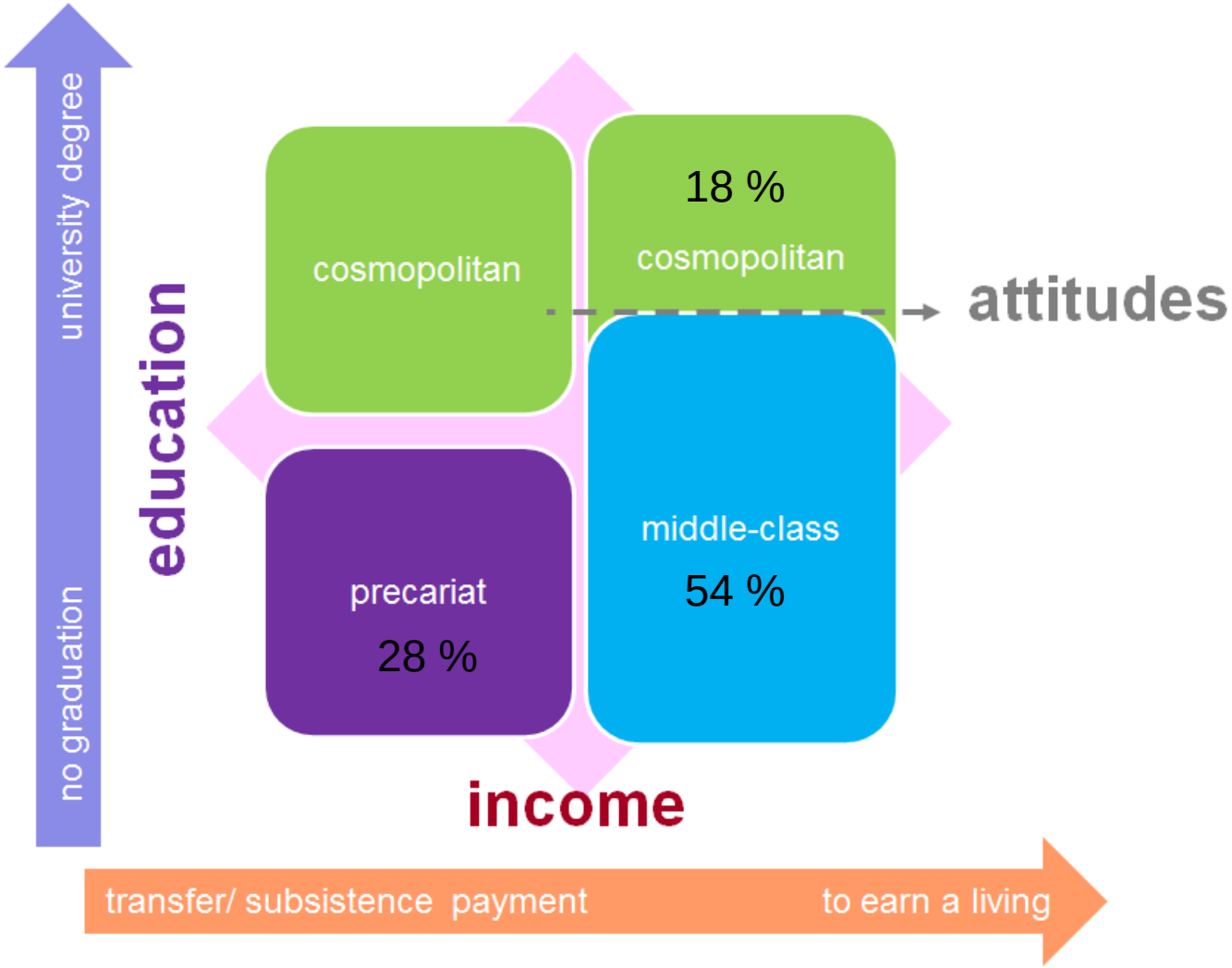
- Trip and ICT diary
- detailed questions about substituted and induced trips or modifications

Different survey contents and detail levels to estimate the effects of ICT on activities and travel behavior

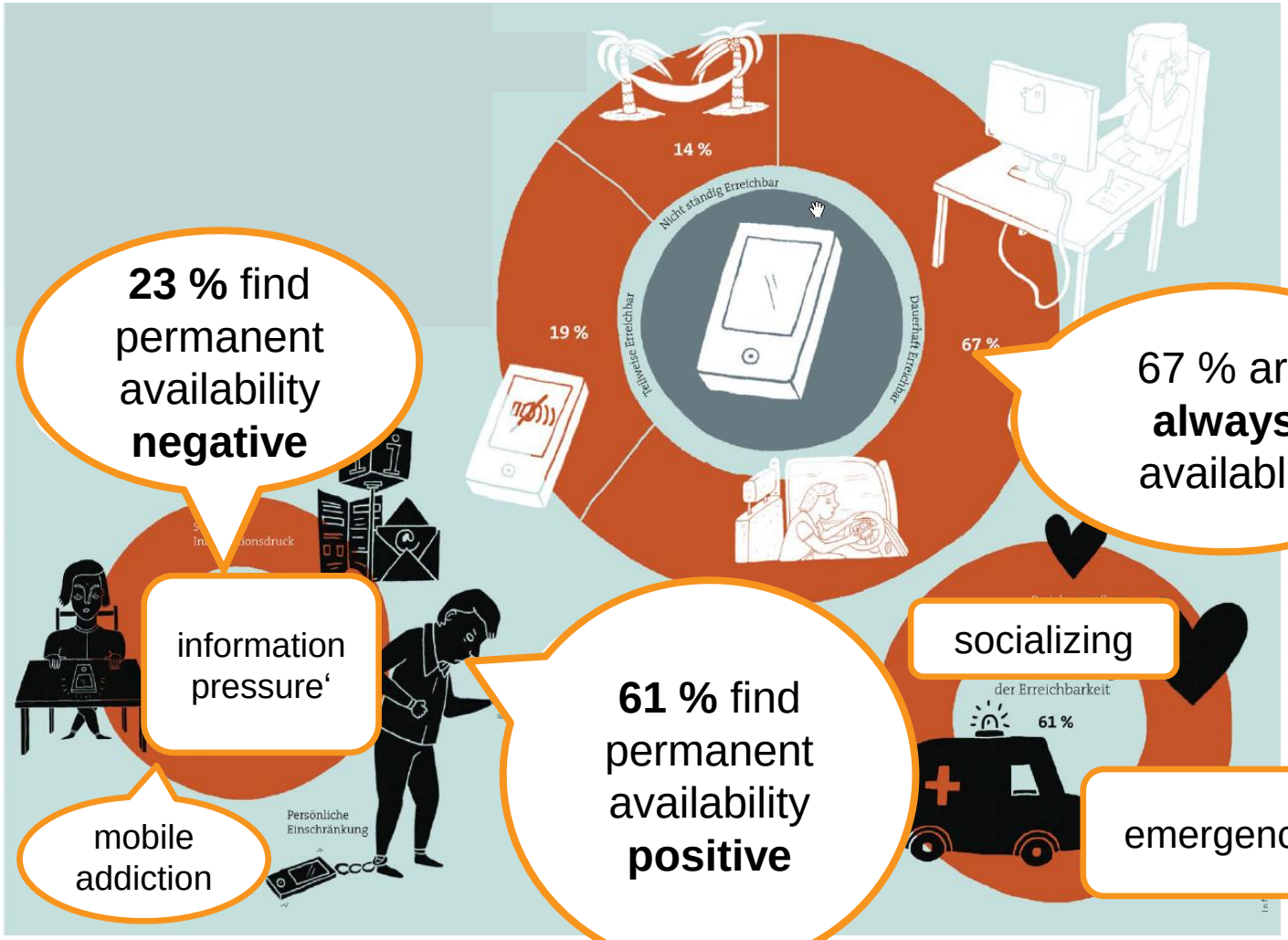
Comparison of the surveys

personal	online
14-24 years old	
3 social milieus (precariat, middle-class, cosmopolitan)	
n= 180	**n = 1273**
Ruhr-Area	**nationwide**
Personal theme-centered interviews	Online-(Access-)Panel
Trip / ICT diary for 3 days	**Trip / ICT diary for 1** day
mobility-based attitudes	

We adopted a simple approach for classification of the social milieus - degree education, attitudes to way of living, and budget



What characterizes today's digital natives?



23 % find permanent availability **negative**

information pressure‘

mobile addiction

61 % find permanent availability **positive**

67 % are **always** available

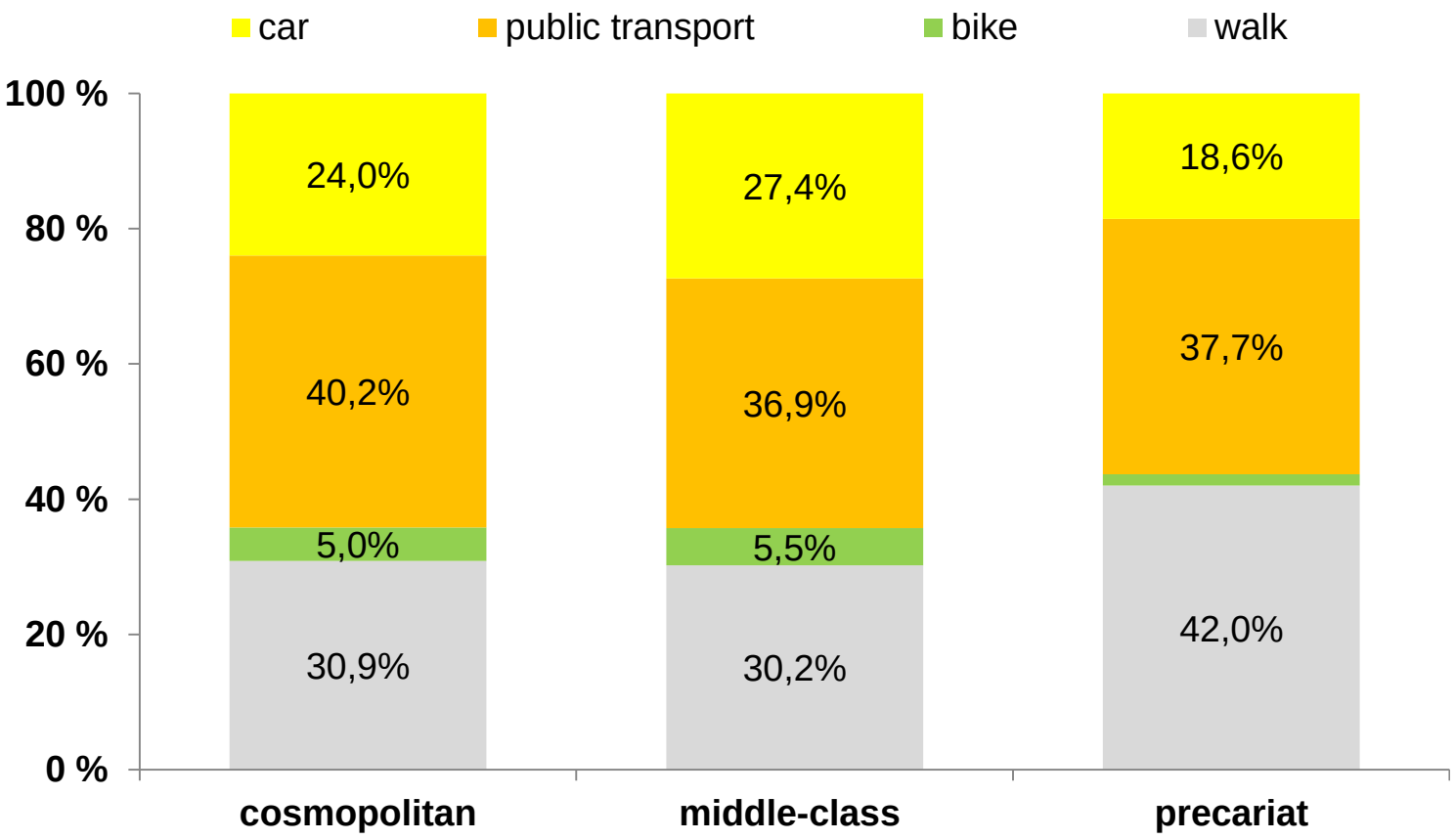
socializing

emergencies

Young adults increasingly prioritise environmental transport modes

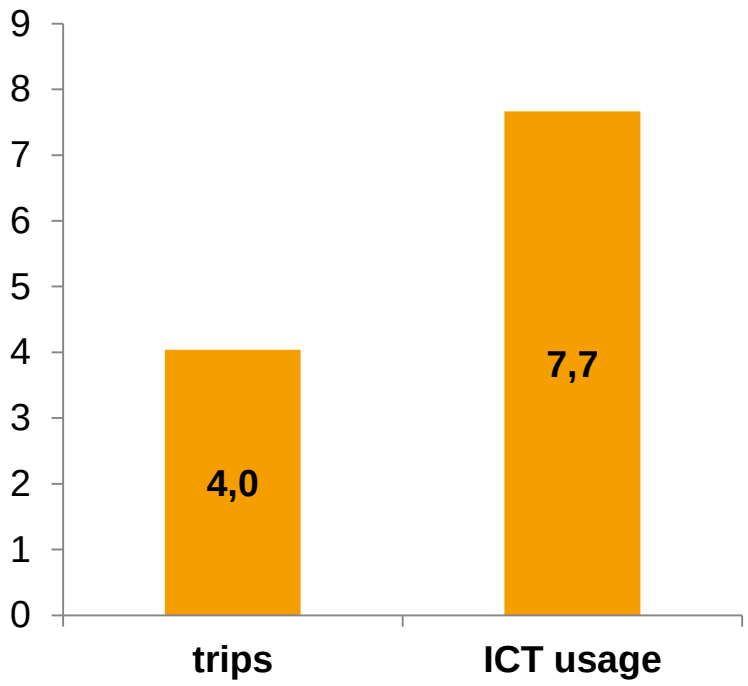
Mode choice (Ø-day)

[percent] first survey



Significantly correlation between number of trips and the ICT usage – the more trips the more ICT use

trips and ICT usage (Ø-day)
[count / paper pencil]



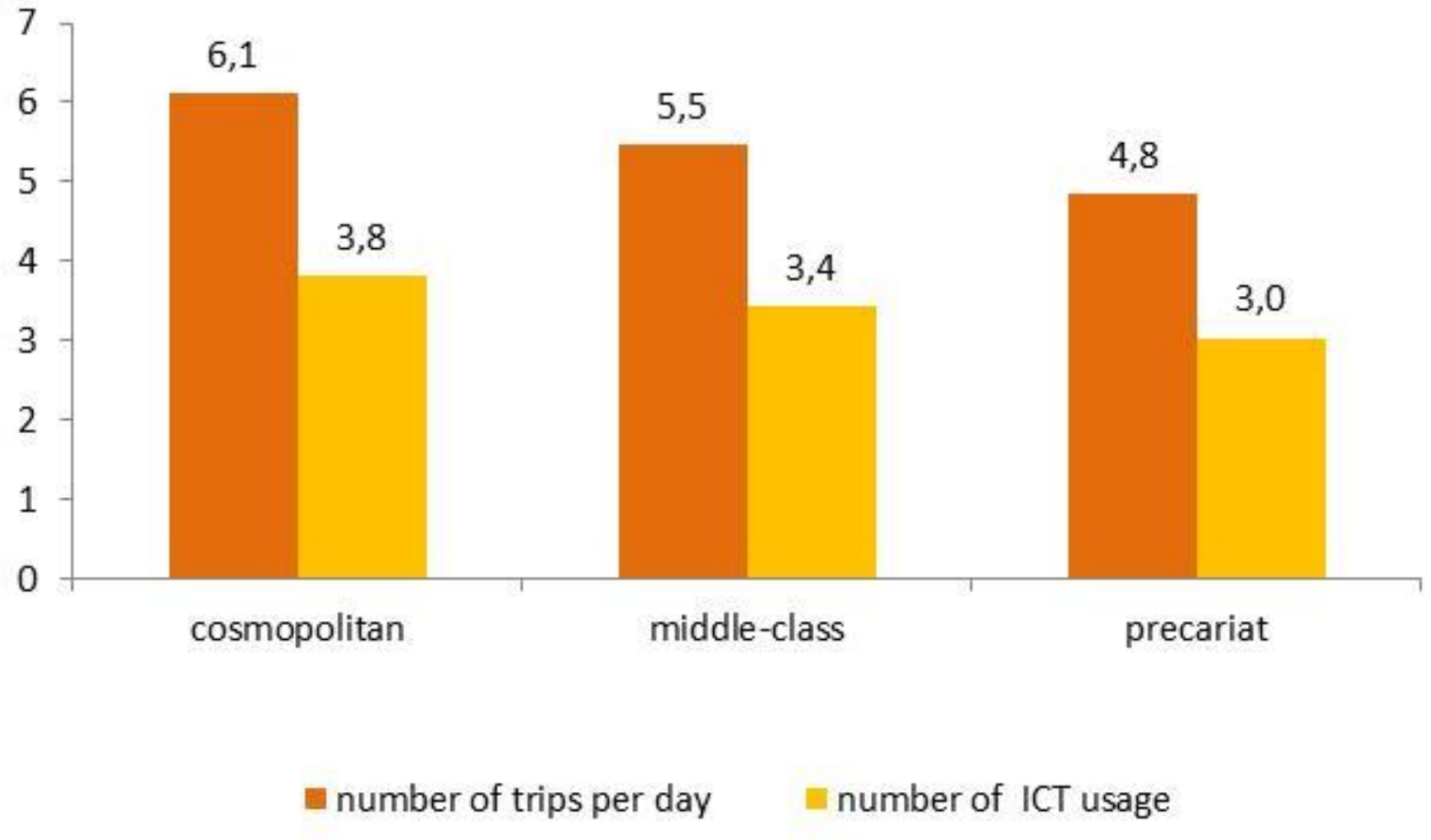
correlation
trips – ICT
0.32**

Comments

- **Public transport** and walking have extraordinary shares in the modal split
- ICT has a considerable meaning in the **everyday life** of young people

Cosmopolitans make the highest number of trips as well as the number of ICT usage

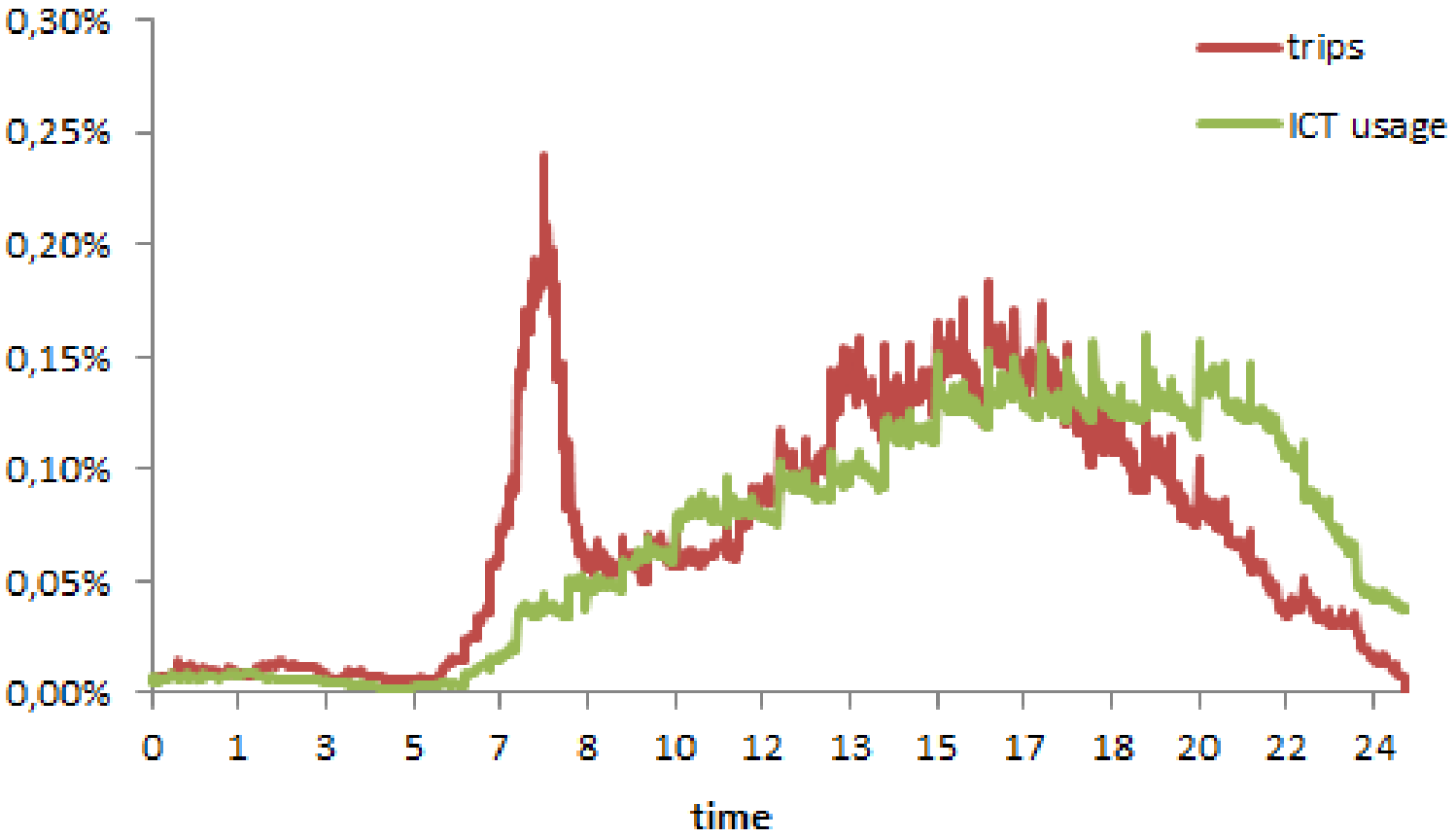
trips and ICT usage (Ø-day)
[count / online]



Excepting the rush-hour in the morning the distribution of ICT usage and trips are similar looking

ICT usage / trips and time distribution

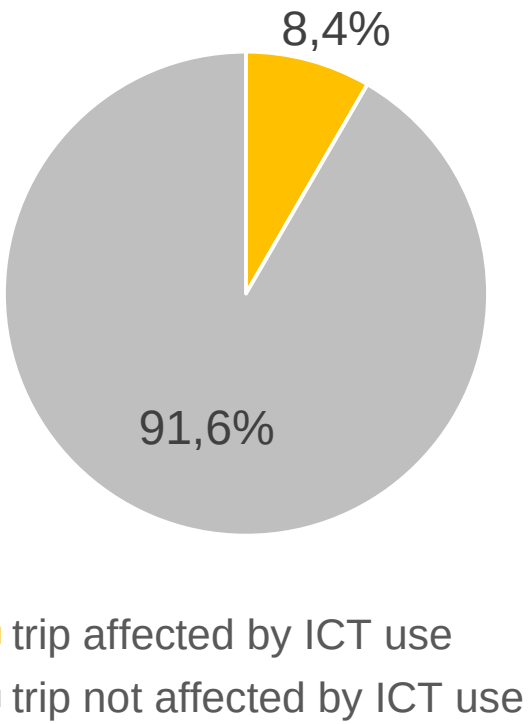
[percent]



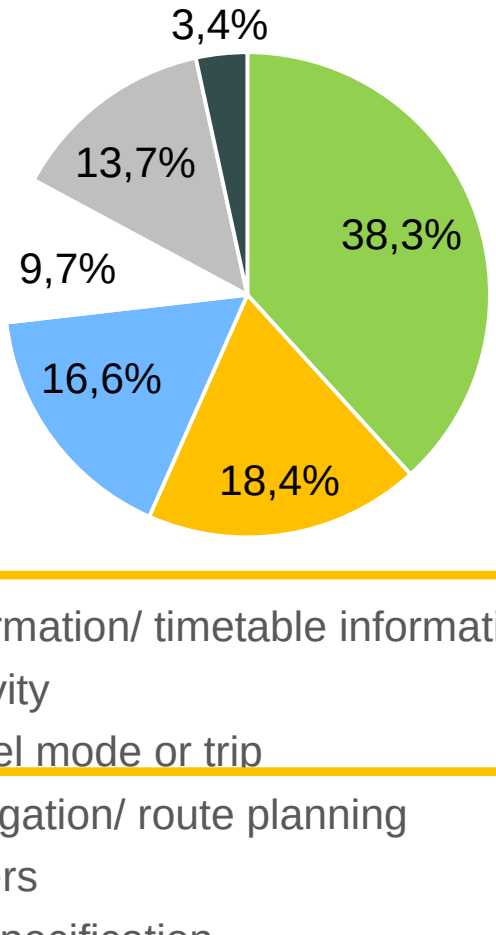
Trip diary: Nearly 8 % of the trips were modified by ICT use

Trip modification

[percent]



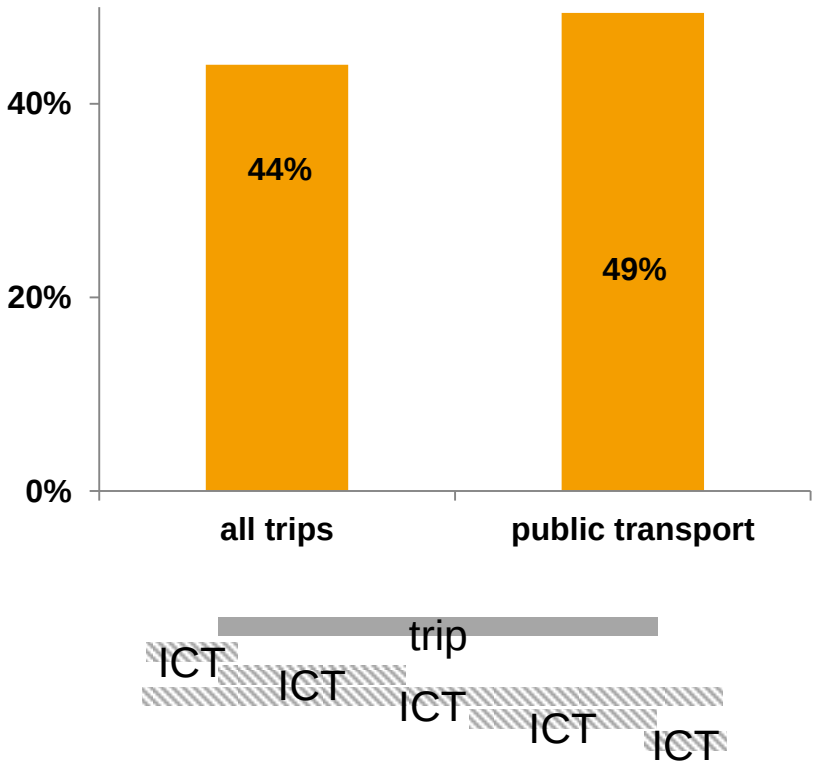
Kind of trip modification



On almost every second trip in public transport, young people use ICT devices such as mobile phones

Share of trips with parallel ICT use

[percent]



Results

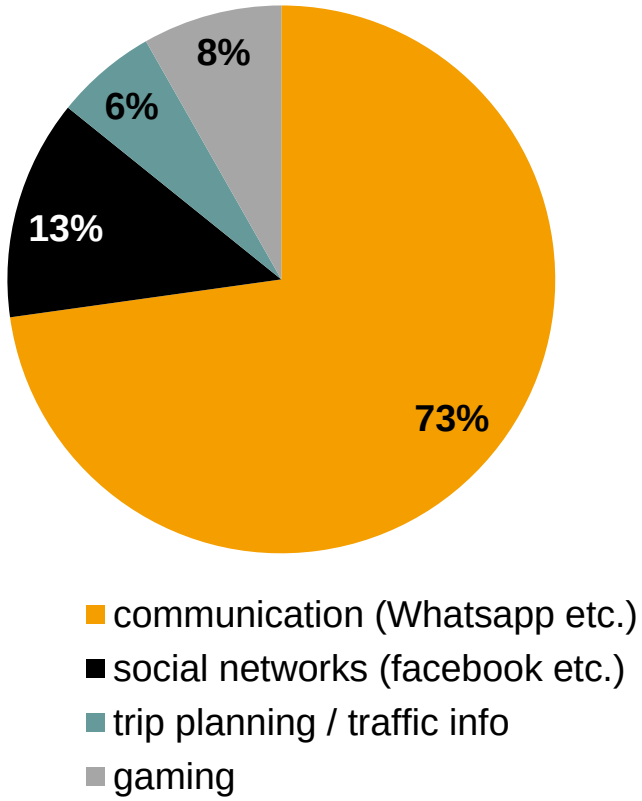
- On average 44 % of the reported trips **overlap with ICT**
- Especially trips by **public transport** are used for ICT activities
- ICT devices used by young people are predominantly **mobile devices**

➢ **14.6 % trips** were modified / induced by the use of ICT

ICT is in particular used for communication and socializing

ICT activities during a trip

[percent]



Results

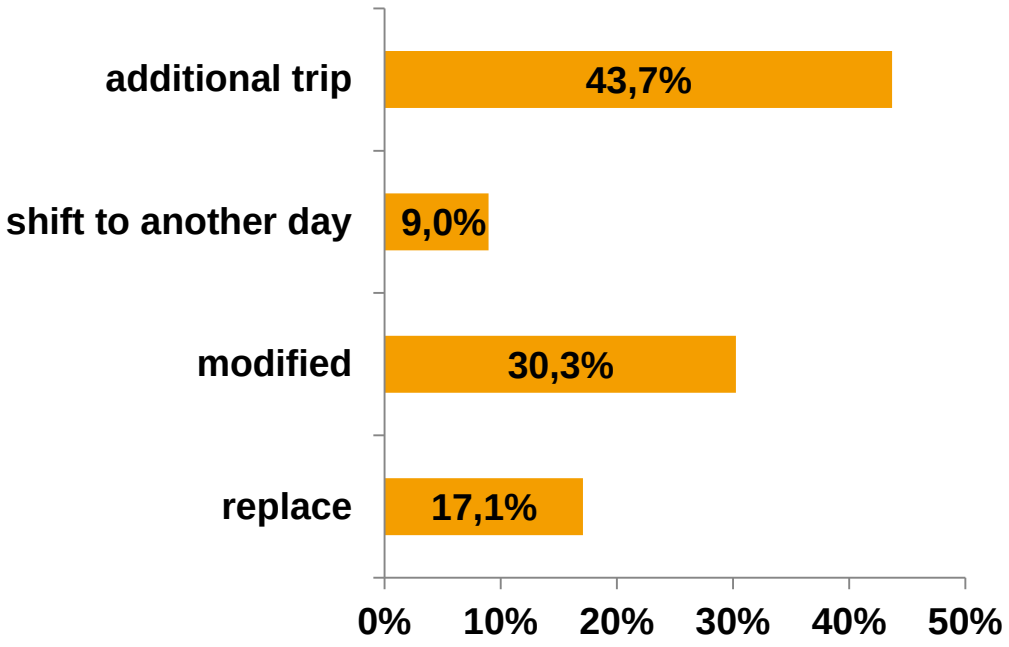
- **only 6 %** oft the ICT usage are trip planning or mobility information
- mainly for better information about **different routes** and **modes**

➢ reacting more **spontaneously** than ever

Over 75 % of young people plan trips and activities online – investing 11 minutes a day thereon

ICT activities which affected a trip

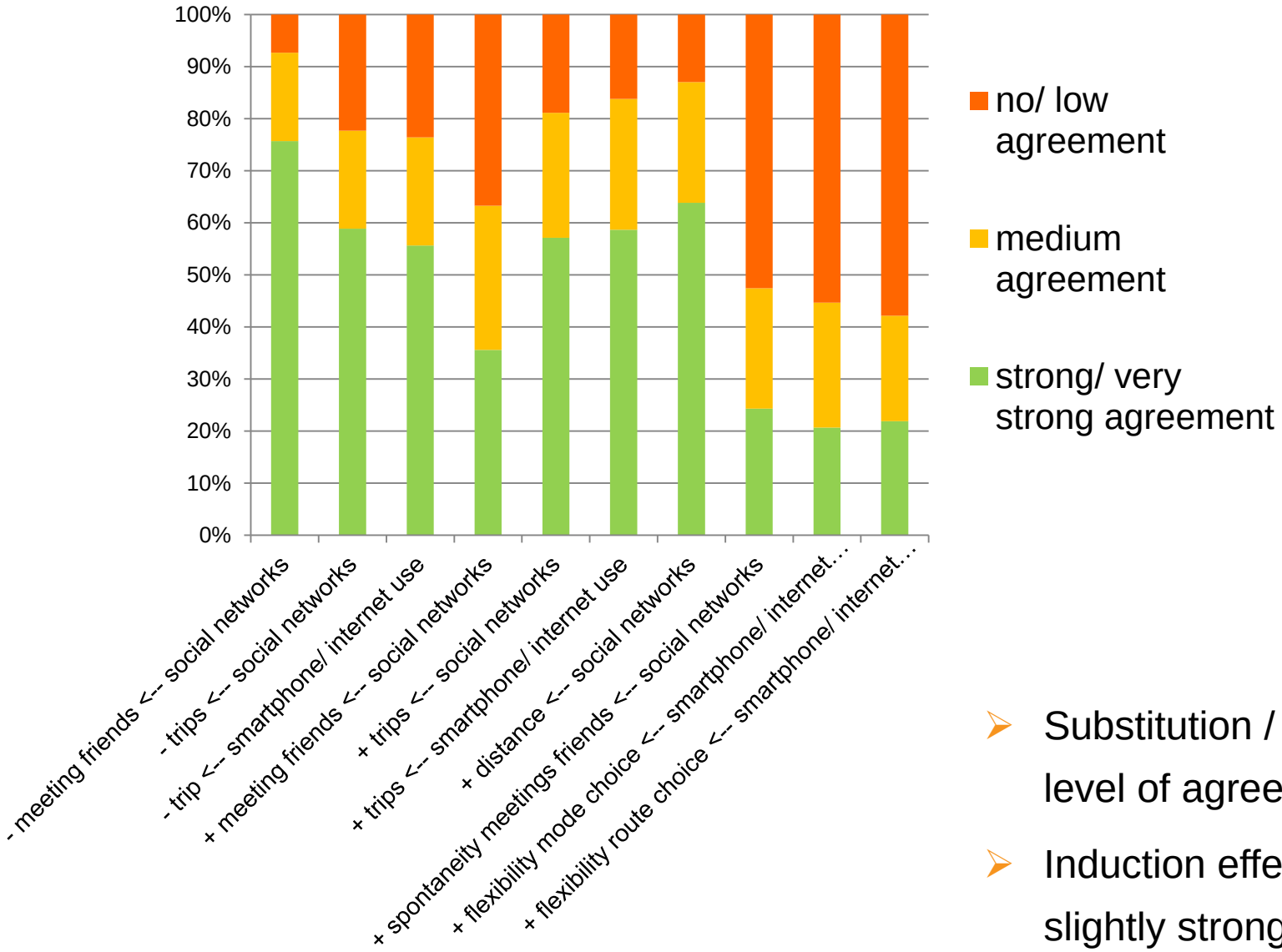
[percent]



Results

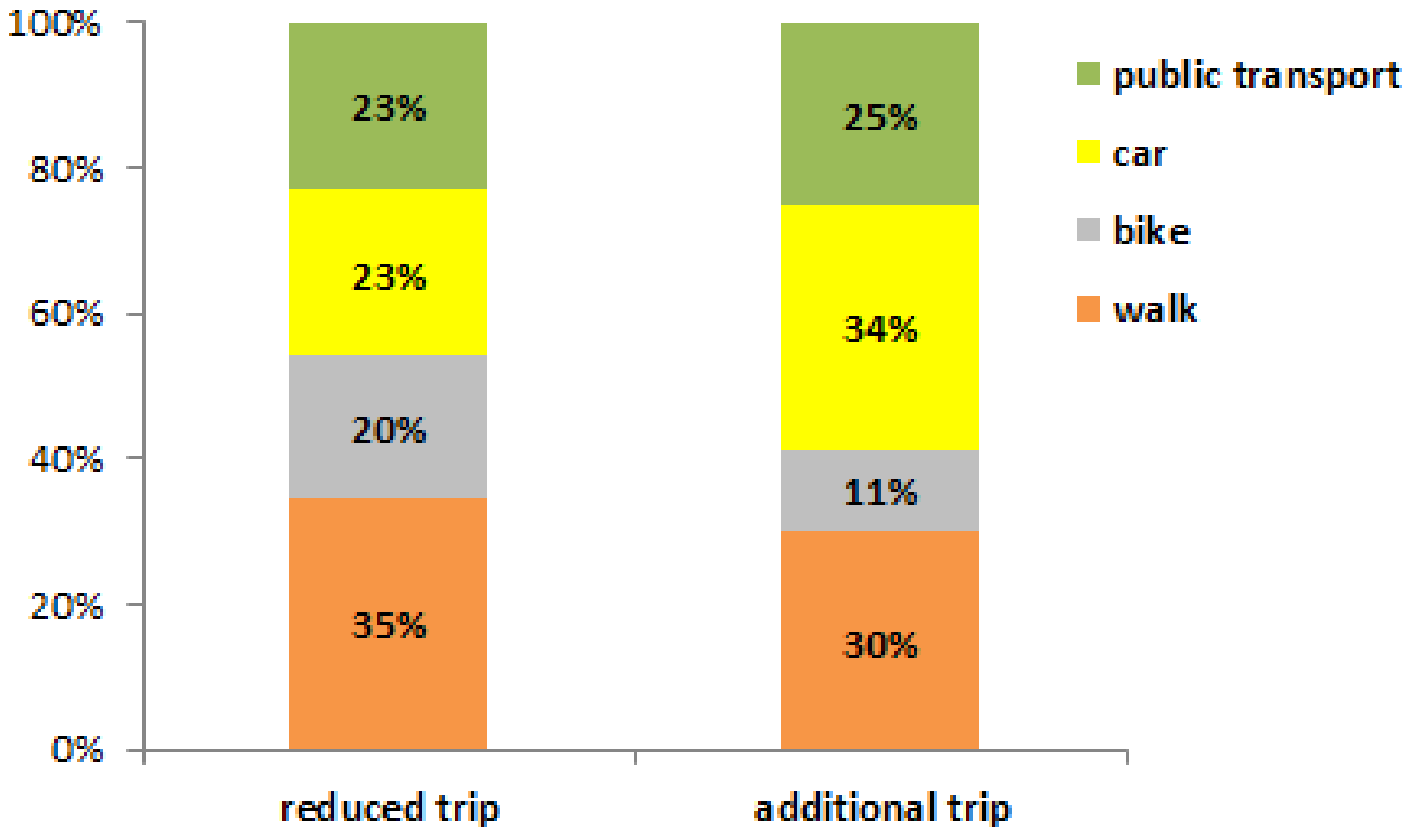
- every **fifth ICT-activity** affected a trip
- ICT lead rather to **additional** trip than to reducing trips
- **reorganize** daily activity and mobility patterns

General effects of ICT use on activities and trips



- Substitution / stimulation: high level of agreement
- Induction effect on trips slightly stronger

On the first view it seems that ICT has only a very small negative sustainable effect – maybe more stimulation of additional car use



ICT has a great meaning in everyday life of young people – do technical devices have the potential to optimize our mobility all alone?

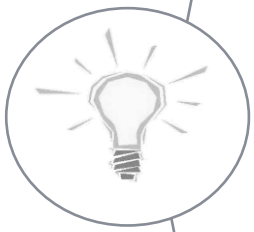
Facts

ICT

- users can choose the mode of travel **best fitting** the situation and their individual time and financial budget
- **Concurrency** and considerable overlapping of virtual and spatial mobility
- **ICT** seems to intensify communication and socializing
- provide new activity and **travel planning**
- ICT leads rather to **additional** ways than to **substitution**
- use of ICT is strongly influenced by the **milieu**
- the ability to use **ICT** while traveling further fosters the attractiveness of public transport - but car and ICT merge together

The link between virtual and physical mobility remains complex and requiring further research

Lessons learned



- difficult to **measure** effects
  - developing and testing new survey approaches
  - observation variables over long periods of time
- **assessment** of the effects of ICT on mobility (and reverse)
- additional ways of **analysing** (SEM, TOPB, DCM)
- **visualising** virtual and physical mobilities

to be continued...

Dr. Dirk Wittowsky
ILS – Research Institute for Regional and Urban Development gGmbH

dirk.wittowsky@ils-forschung.de