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Infotainment in Intercity Bus Services

Customer Requirements Analysis and Conceptual Design

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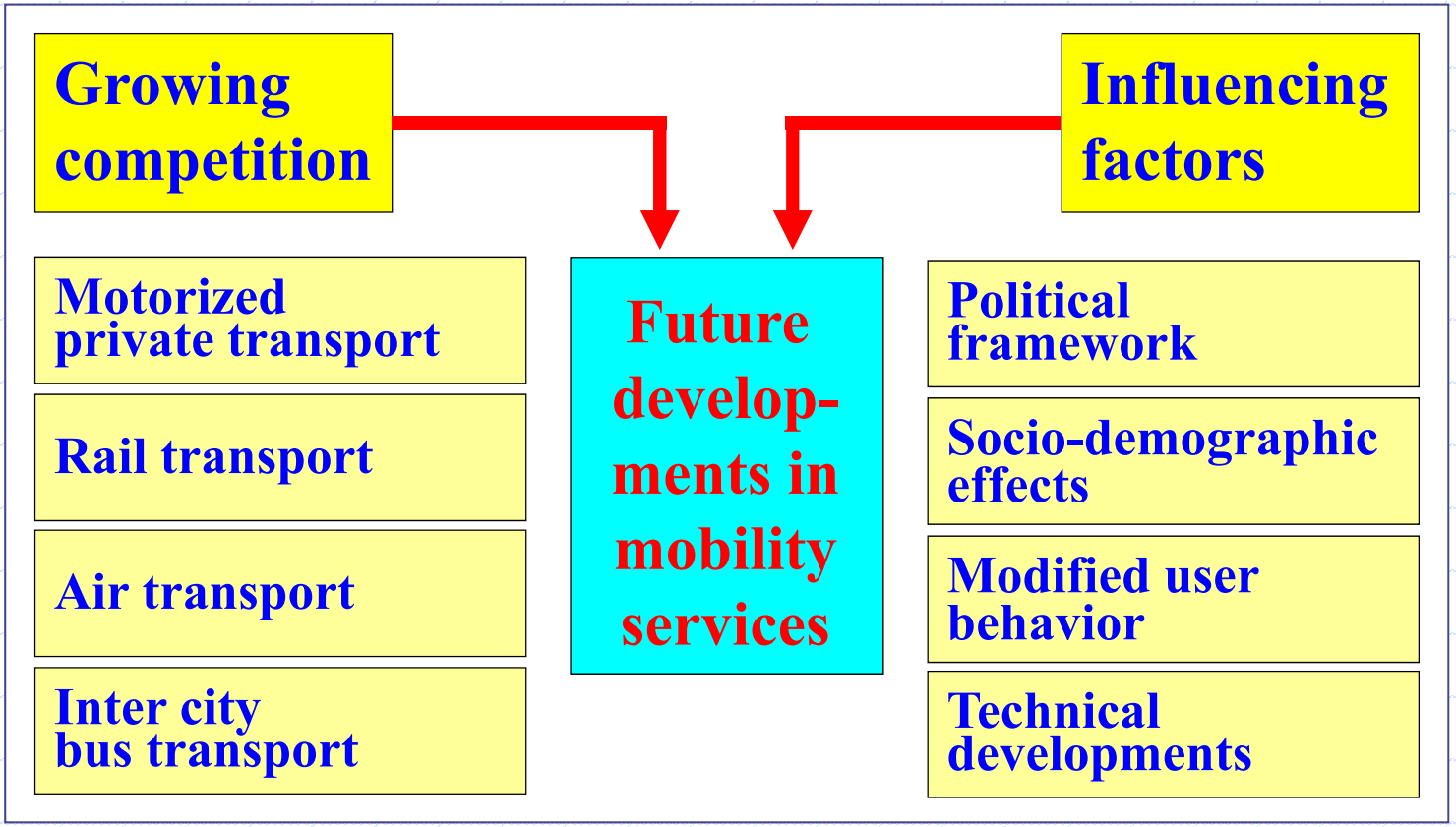
Content:

- Introduction
- Objectives and implementation of the study
- Analysis and evaluation of findings
- Cost calculation for an infotainment system
- Outlook

Introduction / Basics and developments (1)

- *Developments in long-distance passenger services*



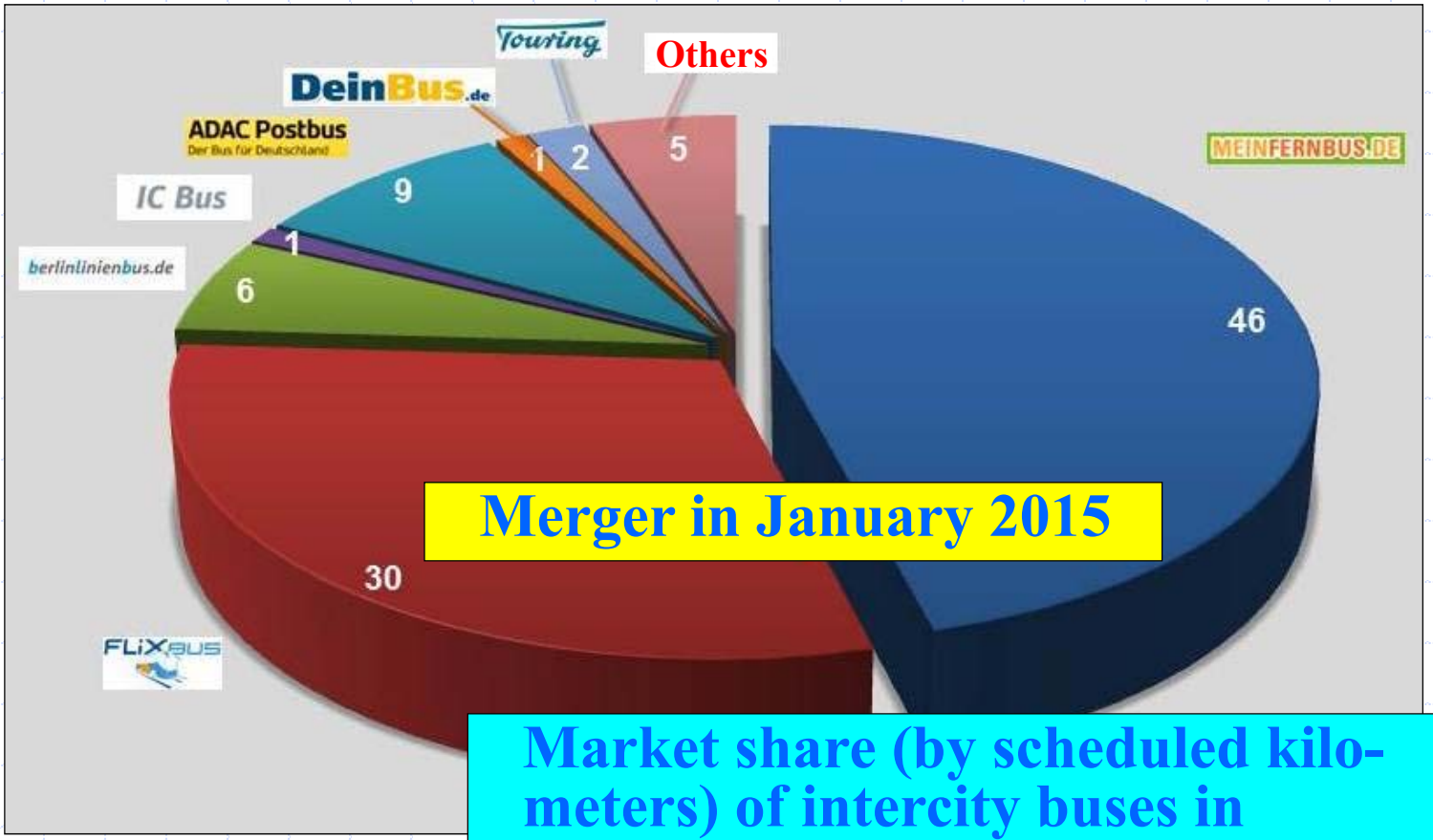
Introduction / Basics and developments (2)

- In Germany for (public) inter city bus services *significant restrictions* exist until 2012 (relating to the *historic protection* of railway services).
- In 2013 the *market deregulation* results in a number of newly licensed *bus providers* offering *national* and *international services*.
- Accordingly, the *competition* in intercity bus services increased and the German *market* developed more and more dynamically.
- At the same time *intermodal competition* in *passenger long-distance transport* started to grow.

Introduction / Basics and developments (3)

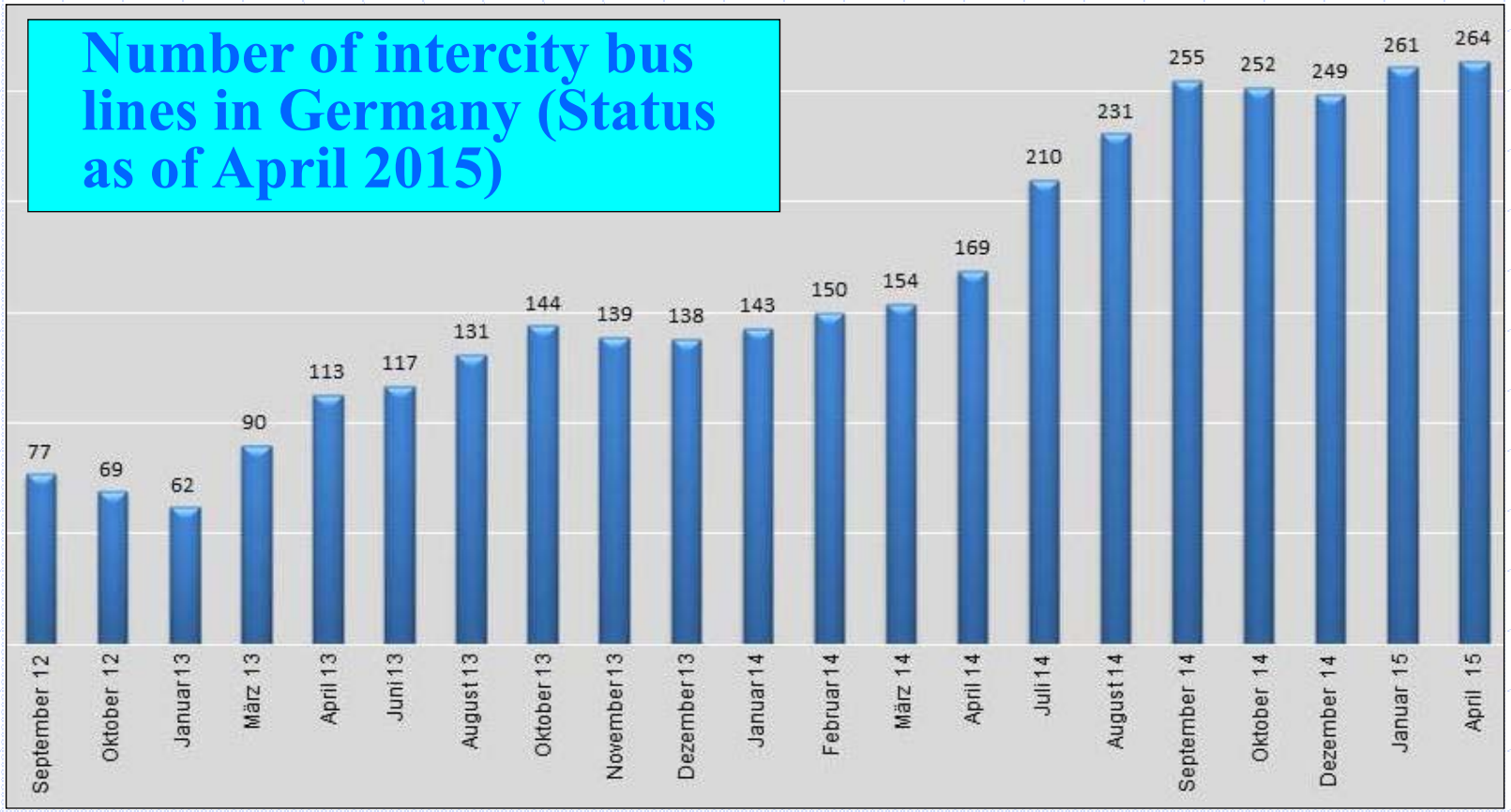
- **Key factors regarding this competition are the *service quality* and especially the offer of *innovative services*.**
- **One possible solution can be the use of an efficient in-vehicle *IT infrastructure* in connection with *multimedia content* to implement attractive *infotainment systems*.**
- **To analyze *customers' requirements* a survey has been carried out in cooperation with a bus manufacturer and an intercity bus provider.**

Actual situation in German inter city public bus transport (1)

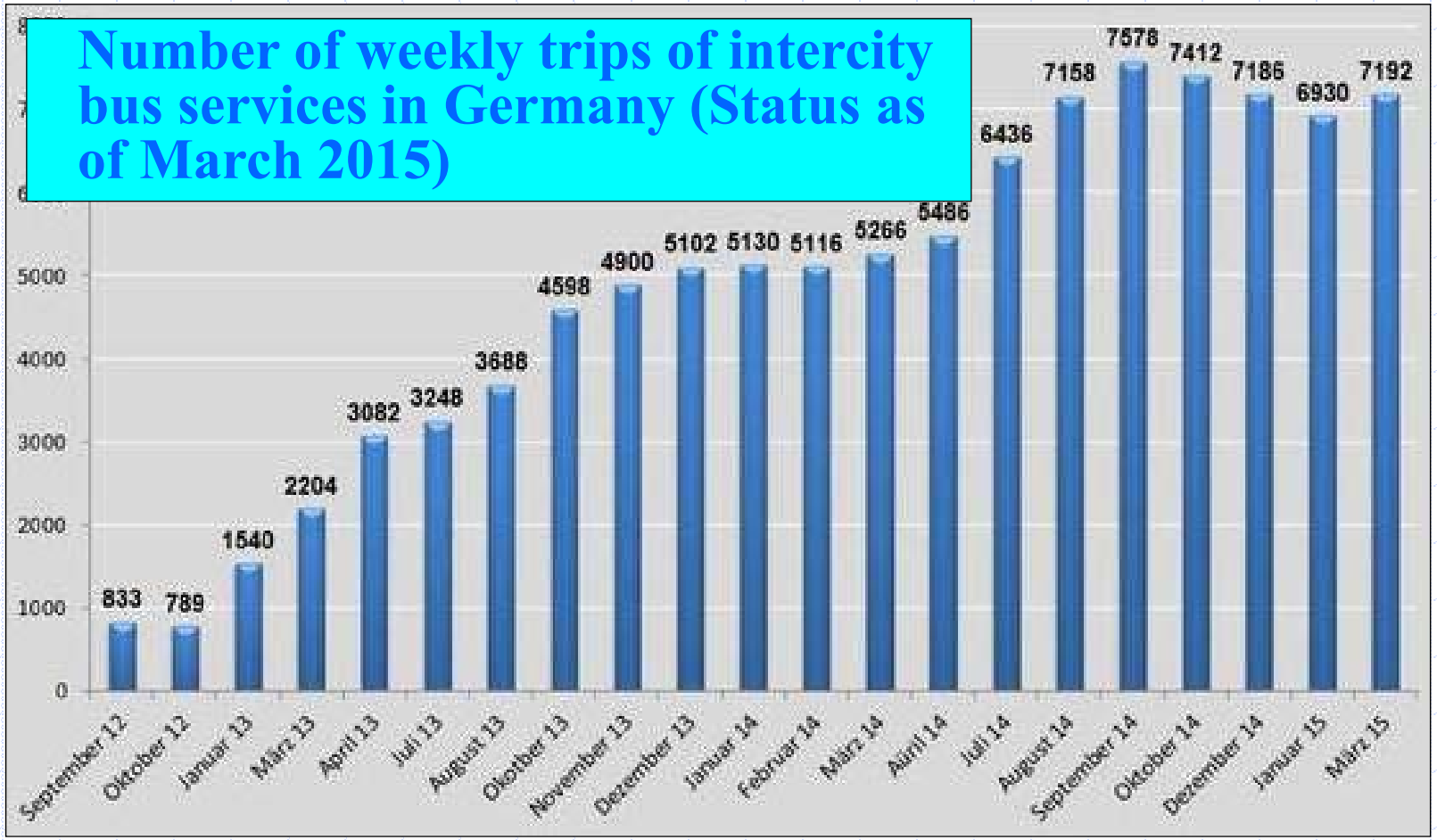


Market share (by scheduled kilo-meters) of intercity buses in Germany (Status as of June 2015)

Actual situation in German inter city public bus transport (2)



Actual situation in German inter city public bus transport (3)



Objectives and implementation of the study (1)

- ***Empirical analysis*** **of intercity bus users'** ***requirements*** **and** ***preferences*** **for in-bus IT and infotainment services.**

  In this context the following four questions should be answered:

  - **Determination and evaluation of current** ***satisfaction / dissatisfaction*** **of existing** ***services*** **and** ***technical systems*****.**
  - **Identification of existing** ***deficiencies*****.**
  - **Determination and design of** ***innovative services*****.**
  - **Analyzing the** ***willingness to pay*** **for in-bus IT and infotainment services .**

Objectives and implementation of the study (2)

- ***Intercity bus service provider*:**

  Provision of detailed information to develop *innovative services* in the field of IT applications and infotainment systems.

- ***Coach manufacturer*:**

  Provision of detailed *technical requirements* to approve the *bus design* relating to the demand of intercity bus service provider.

Objectives and implementation of the study (3)

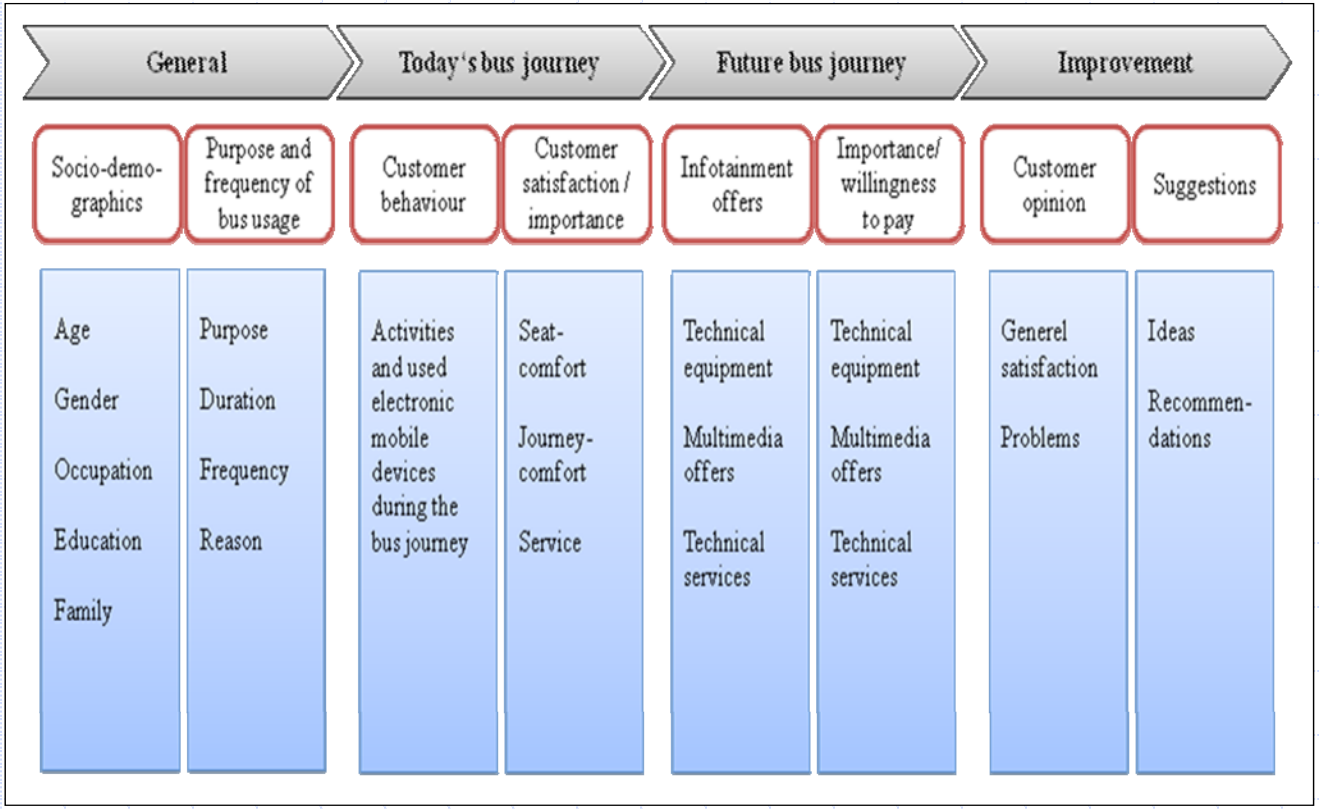
- ***Structure and design of the questionnaire*:**

  Identification of relevant and important *quality criteria* (→ DIN EN 13816) (e.g. *availability*, *accessibility*, *comfort*, *safety*) as a basis.

  Structure of the *questionnaire content*:

  - ***Socio-demographic background* of *questioned customers*.**
  - ***Behavior* during the intercity bus trip.**
  - ***Satisfaction* / *dissatisfaction* relating to the actual trip.**
  - **Development of *IT applications* and *infotainment systems*.**
  - ***Willingness to pay* for available and future services.**

Objectives and implementation of the study (4)



Structure and content of the questionnaire

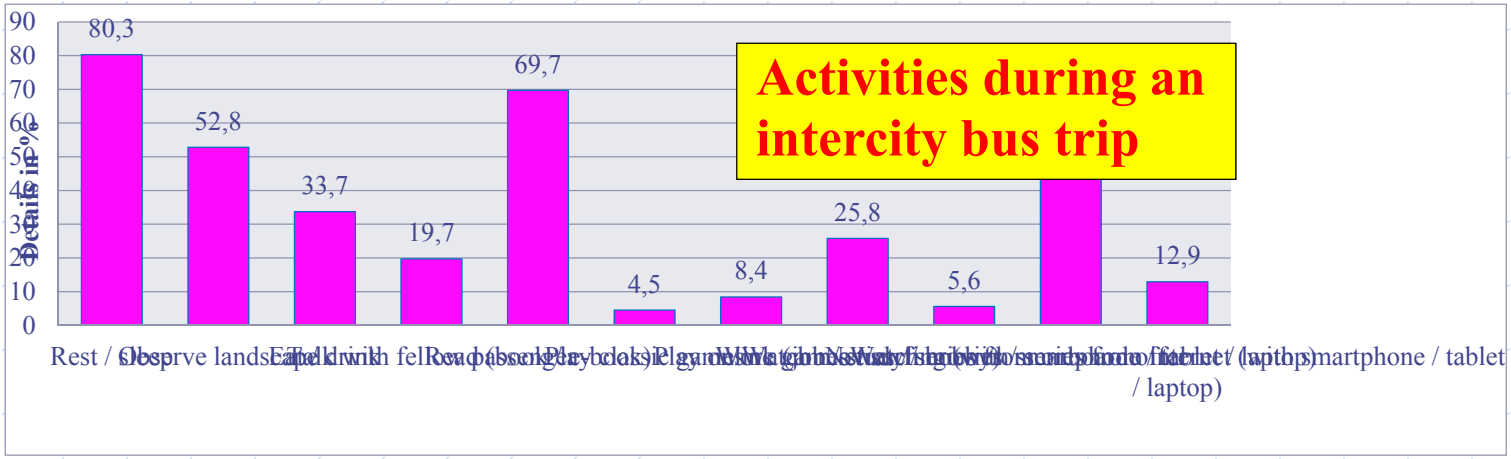
Objectives and implementation of the study (5)

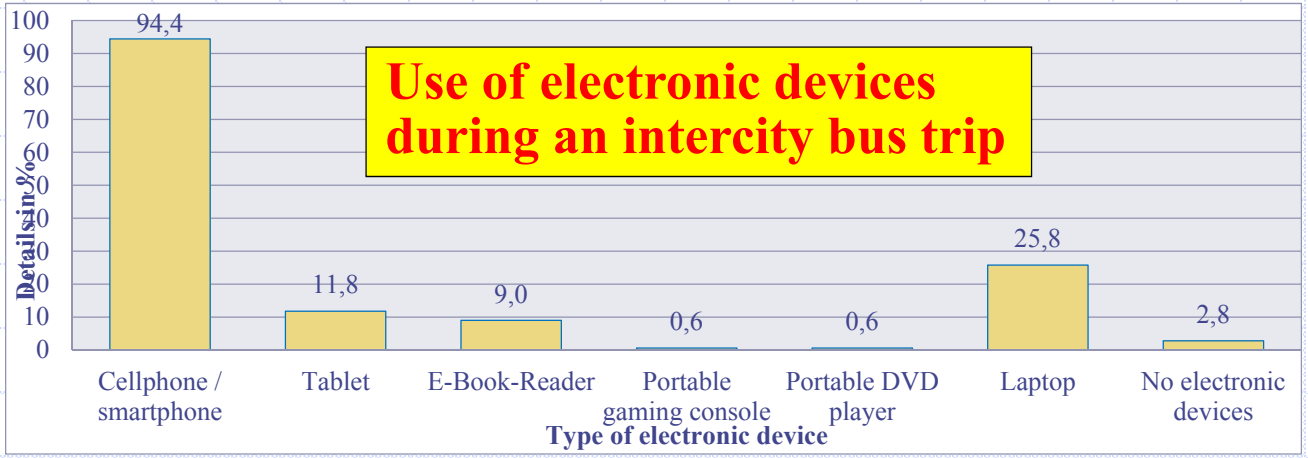
- ***Implementation of the survey*:**

  The survey took place in March 2014 in intercity buses of the German provider *FlixBus*.

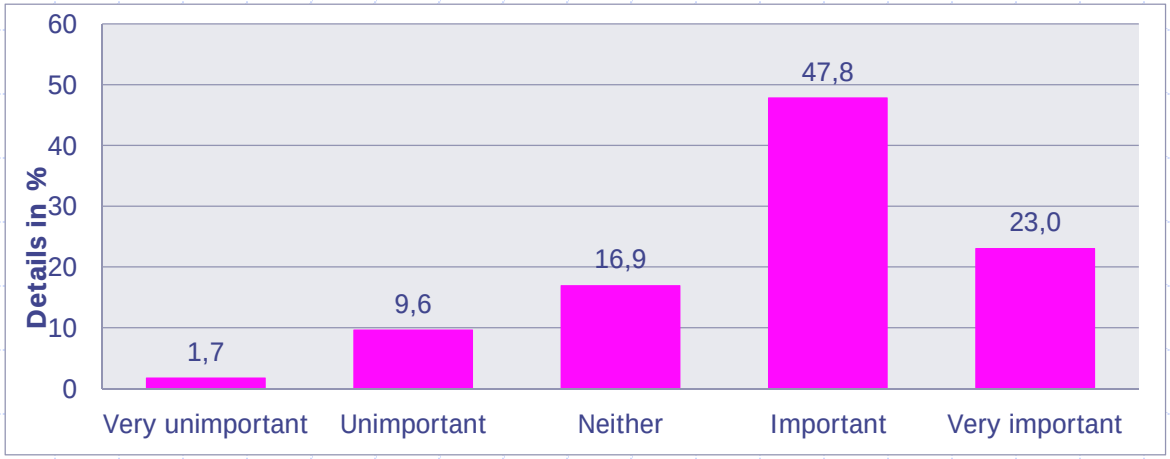
  Questioned were 178 customers during their bus trips in the north and eastern parts of Germany on intercity bus lines between Hamburg, Hannover, and Berlin,

Analysis and evaluation of findings (1)



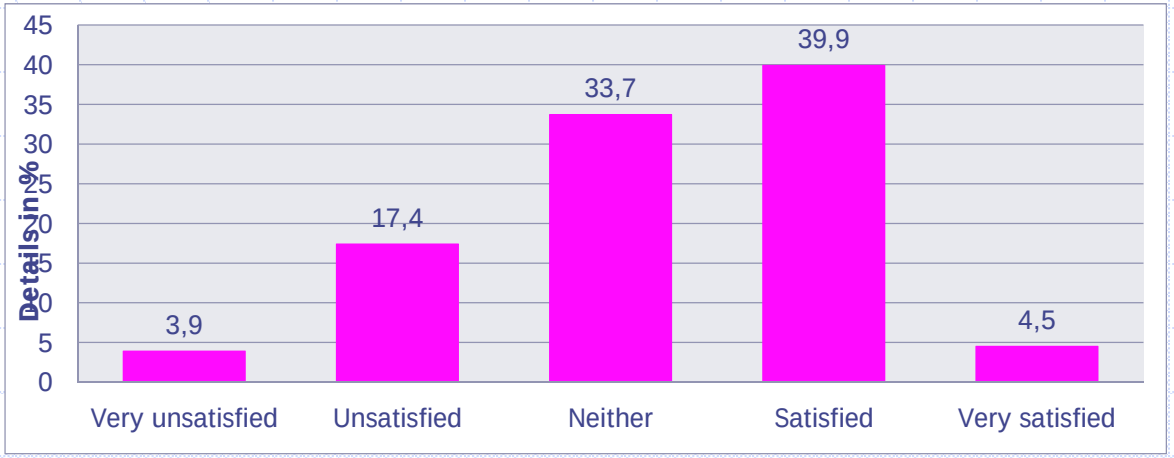


Analysis and evaluation of findings (2)

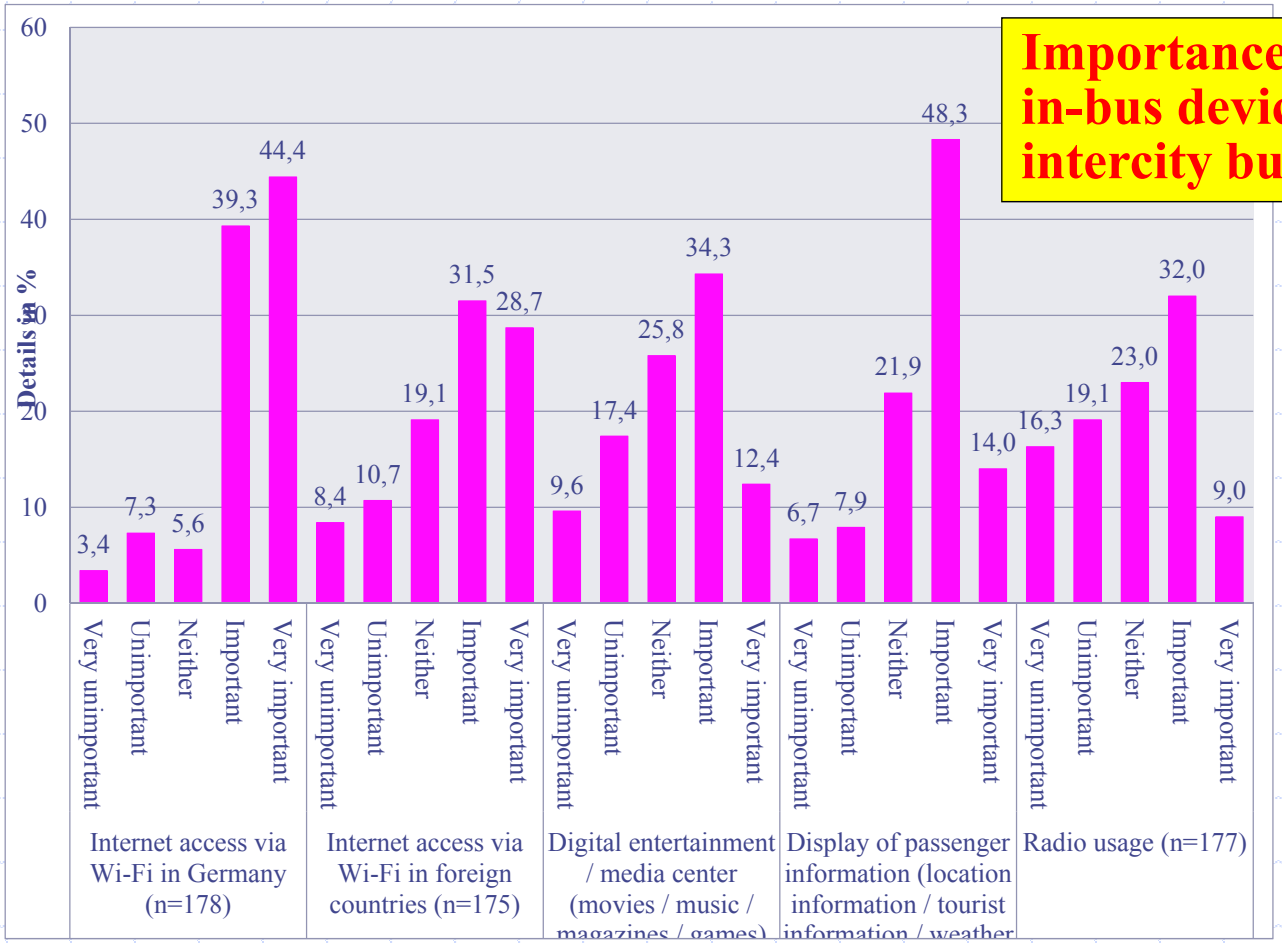


Importance of technical in-bus equipment

Satisfaction with the technical in-bus equipment



Analysis and evaluation of findings (3)



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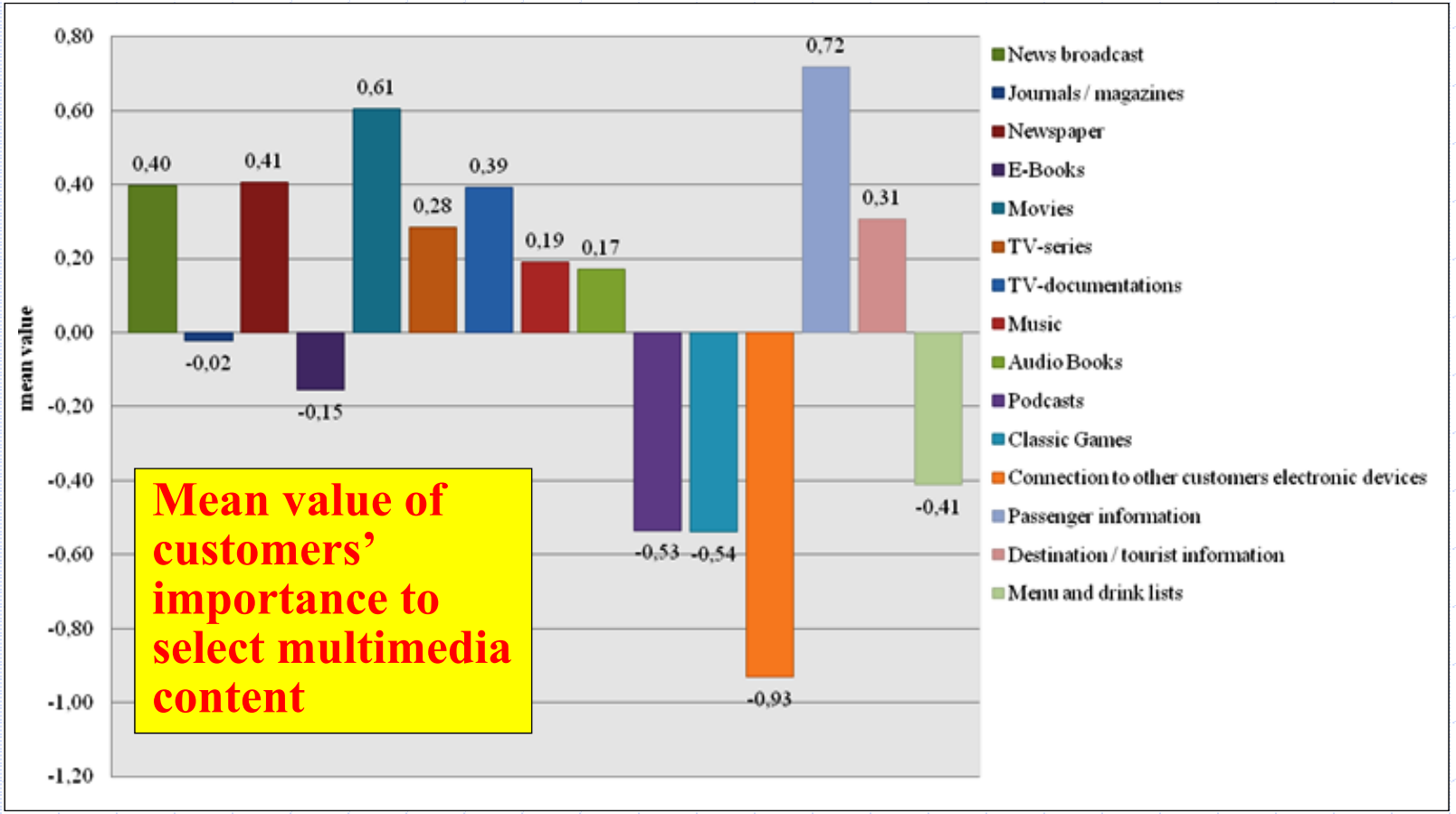

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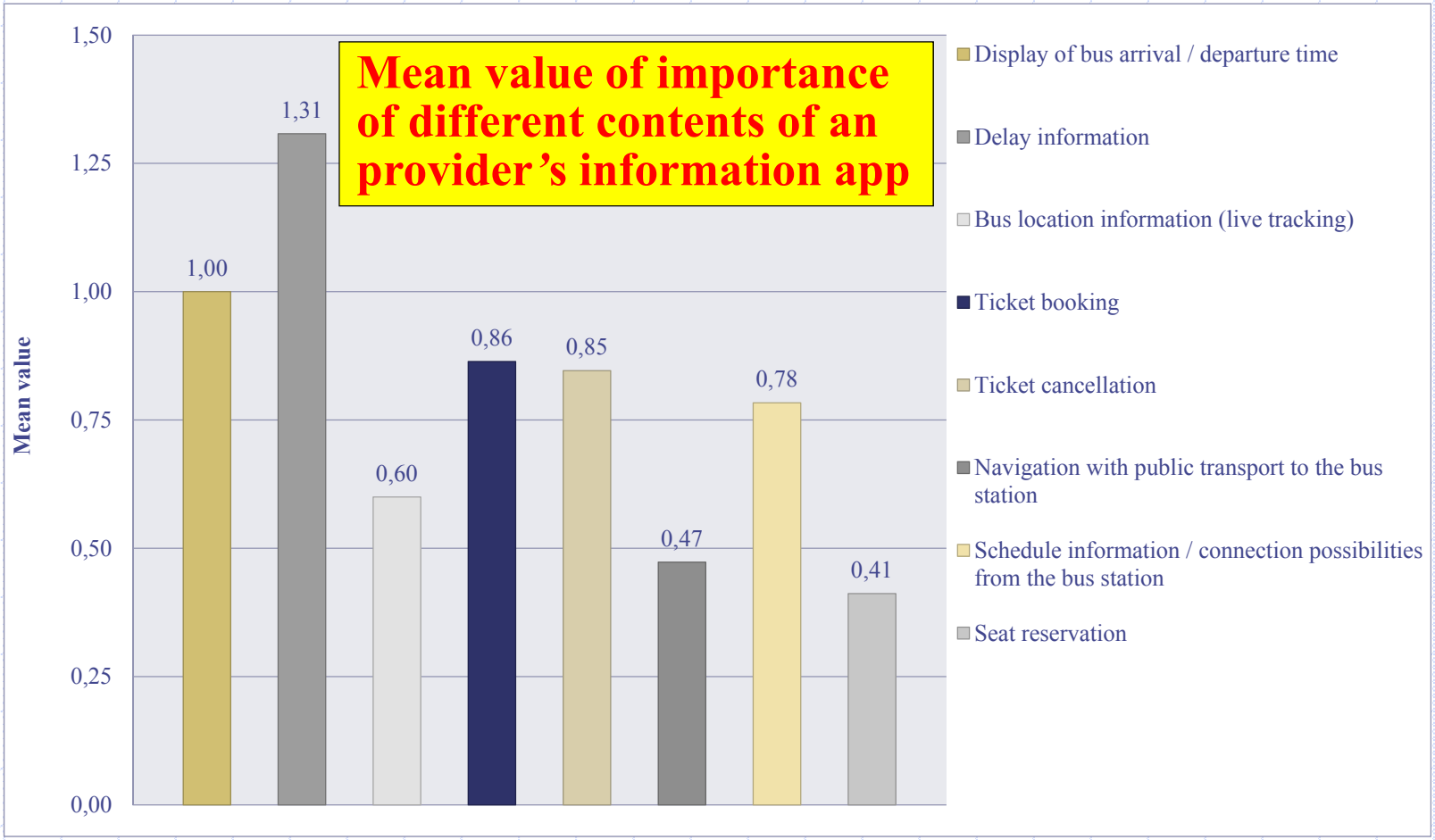
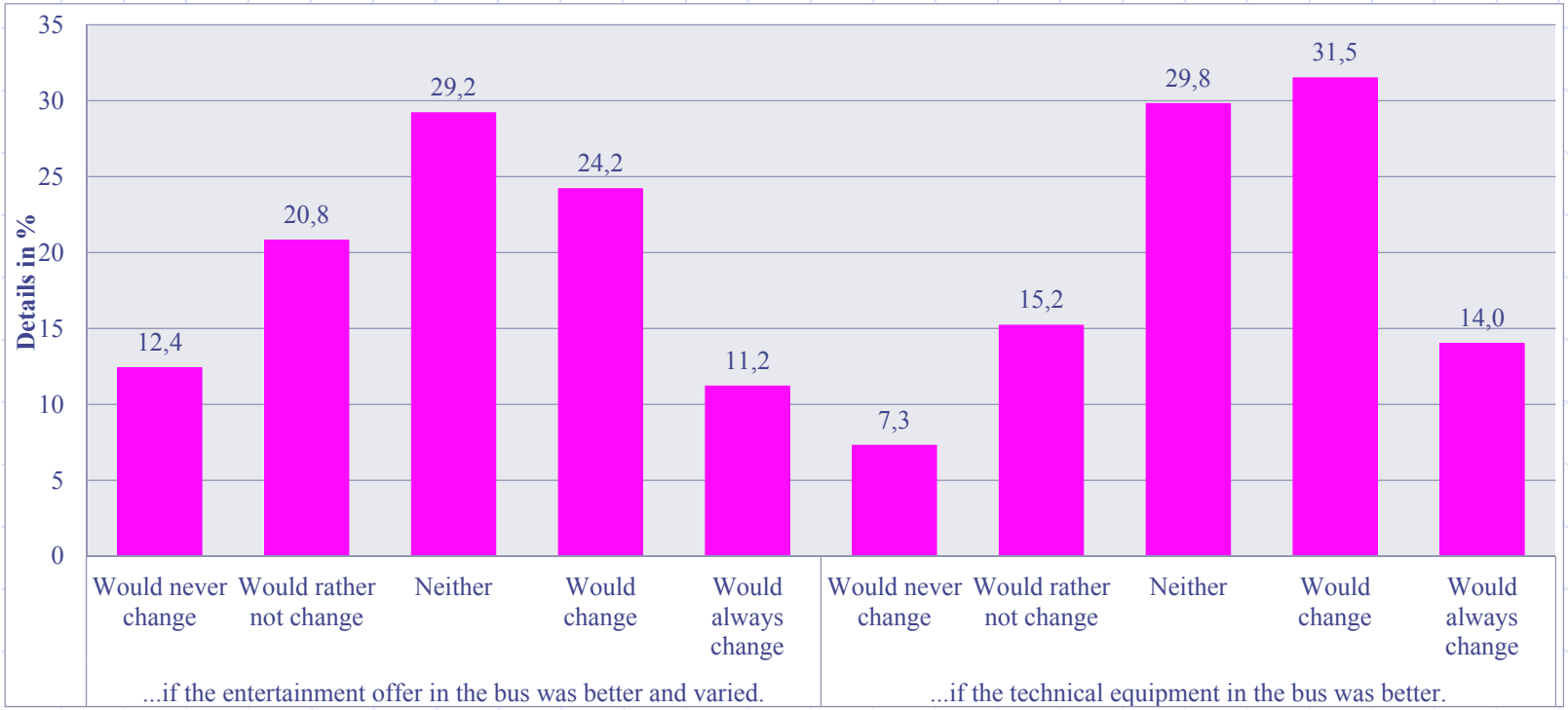
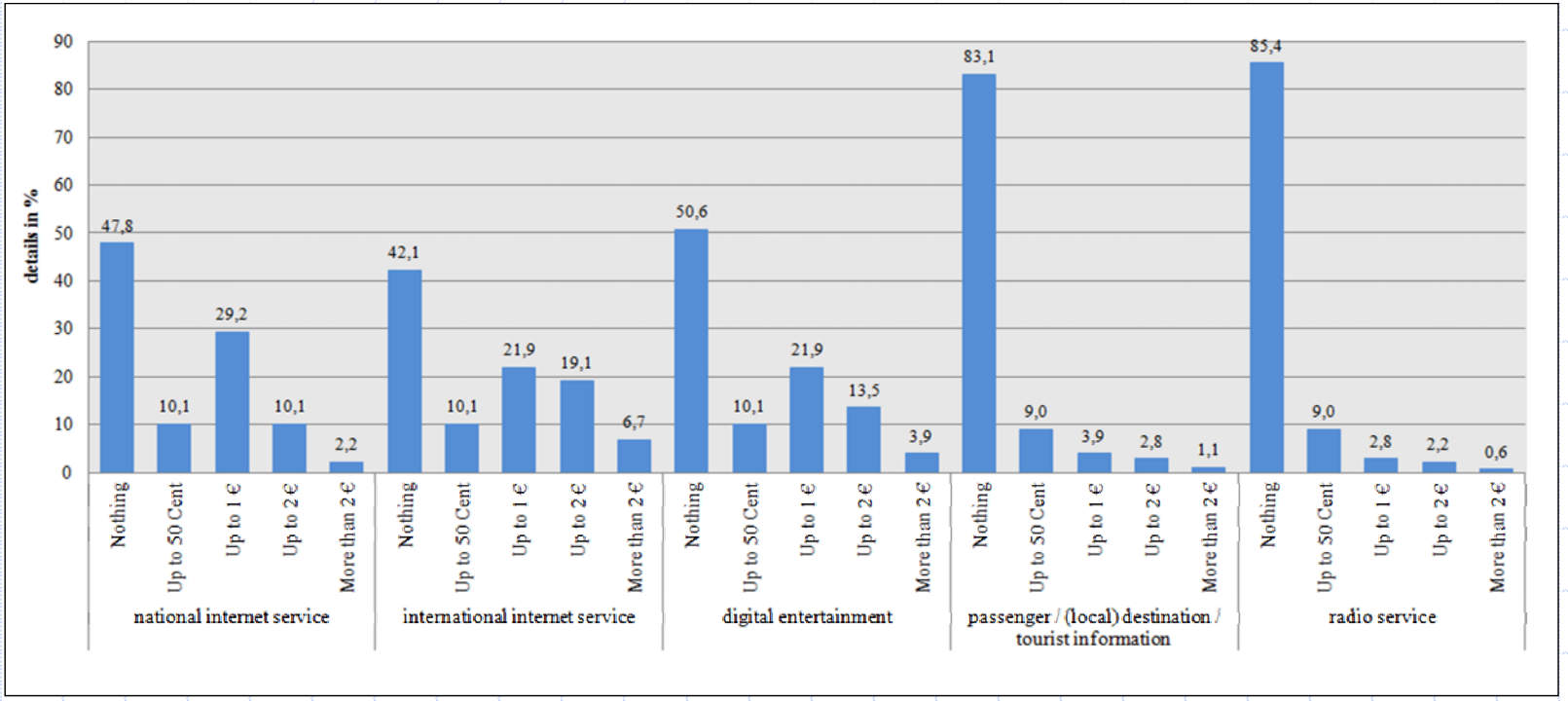


Analysis and evaluation of findings (6)



Willingness to change a provider if a better entertainment service is offered and if a better technical in-bus equipment is available

Analysis and evaluation of findings (7)



Total willingness to pay of customers for offered services in percentage terms

Analysis and evaluation of findings (8)

- ***Changing of provider due to the (technical) features***

  If from customers' point of view the *importance* of *technical in-bus equipment* in intercity buses is high, the probability to change to a competitor with better equipped buses is increasing.

- ***Customer loyalty***

  A higher satisfaction regarding the technical in-bus equipment will lead to a lower probability to change to a competitor, that means the customer loyalty is increasing.

Analysis and evaluation of findings (9)

- ***Willingness to pay***

  If there is a considerable *demand* relating to an *Internet access* the willingness to pay for such a *charged service* is increasing significantly.

  (On average, the customers would be willing to pay for domestic Internet service 0.60 €, for international service 0.84 €, and for offered digital entertainment 0.64 €.)

Recommendations for further measures

- The results of the study show that a *multi-functional infotainment system* in connection with a provider *information app* presents a *suitable competitive advantage*.
- Therefore, the primary objective must be to design (or to buy) a suitable system to offer an attractive service. For this purpose it is necessary that *intercity bus service provider*, *coach manufacturers* as well as (*external*) *software provider* cooperate.
- Precondition for a system implementation is the *economic efficiency*, so that the question will be whether the *additional revenues* can in a long-term view (over)compensate incurring *investment* and *operational costs*.

Basic components / Infotainment system

Infotainment

Movies	TV programs	TV documen-tations	Timetables
Audio books	E-books	Journals	Magazines

Information

Newspapers	News programs	Location information	Arrival times
Weather	Events / Points of interest	Travel guides	Timetables

Basic components / Provider information app

Arrival times	Departure times	Delays	Navigation in public transp.
Location service	Booking	Cancellation	Timetables

Cost calculation infotainment system (1)

- **Basis for the following calculations is the full service system *OmdisNet* offered by *Omdis Media GmbH*, which can be bought as well as rented.**

  This system is based on *wireless technique* (WLAN) and it contains wide range of *on demand services* which can be used on trip by *own mobile devices*.

  Especially important is that OmnisNet is a *modular system* so that *customized configurations* are possible.

- **Starting point is a long-term *rental contract*, which is *vehicle-related*. The accruing costs result from a *basic package* plus possible *extensions*.**

Cost calculation infotainment system (2)

Rental basis package	1,584
Upgrade 50 users	204
LTE router / Internet access	168
20 music albums (per year)	160
5 new television series (per year)	225
20 audio books	168
Newspapers	636
Journals / Magazines	348
Enterprise portal	480
Total cost (per bus / per year)	3,973

Cost calculation infotainment system (3)

- To attain a *self-financing solution* an additional revenue of 3,973 € must be achieved.
- *Calculation basis*:

  ((((Fare increase * Number of tickets) * Number of trips per day) * Number of days per week) * Number of weeks per year)

  - *Fare increase* of 0.25 € for 20 tickets :

    ((((0.25 * 20) * 3) * 6) * 48) = 4,320 € (+ 347 €)

  - *Fare increase* of 0.50 € for 20 tickets:

    ((((0.50 * 20) * 3) * 6) * 48) = 8,640 € (+ 4,667 €)

  (→ *Yield management*)

Summary and recommendations

- The calculation show that in intercity buses an *infotainment system* that covers a wide range of services can be operated economically (on a rental basis).
- *Investment costs* will be necessary only to a limited extent because the system is operated wireless. Regardless of this appropriate in-bus devices can also be installed, if such service will be requested.
- In this case a cooperation between *intercity bus service providers* and *coach manufacturers* will be useful to integrate the devices in a suitable manner and to keep down the necessary costs.