



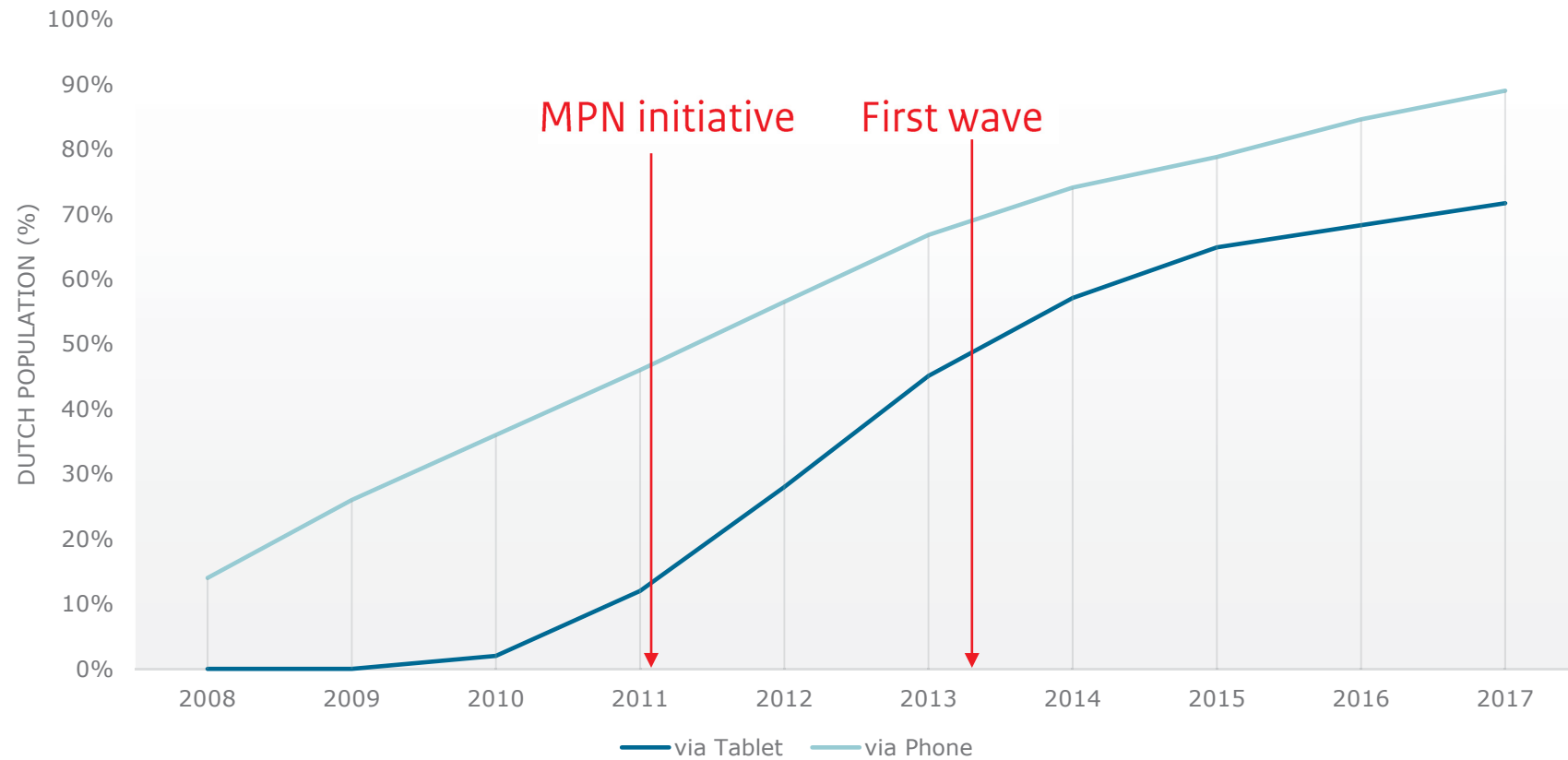
Outline

- Mode effects
- Share of mobile response
- The profile of mobile respondents
- Design for multiple devices
- Conclusions





Internet Access





Unanticipated mobile response

Rationale of traditional online survey design:

- Large screen
- Landscape orientation
- Mouse and keyboard input
- Sufficient space for lengthy questions and options
- Pile questions when possible:
 - Likert scales
 - Grids
- Stable wired internet connection
- Desk completion at home or at workplace

→ Concerns about mode effects



TNS Nipo

Welk vervoermiddel heeft uw voorkeur als hoofdvervoermiddel als u...

Het gaat bij deze vraag om welk vervoermiddel u het liefst zou gebruiken en niet om welke u normaliter gebruikt. Kies dus per regel 1 antwoord alstublieft. Als u dat onmogelijk vindt of erg twijfelt, dan mag u er 2 (of maximaal 3) kiezen.

	n.v.t.	auto	brommer / scooter	motor	fiets / e-bike	trein	bus / tram / metro	lopen
naar het werk gaat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
een zakelijke reis in werksfeer maakt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
naar school/studie gaat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
dagelijkse boodschappen doet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
gaat winkelen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
bij iemand op bezoek gaat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
uitgaat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
een dagje weg gaat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
gaat sporten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

< Terug

Verder >



TNS Nipo

Welke van de volgende vervoermiddelen heeft u in bezit?

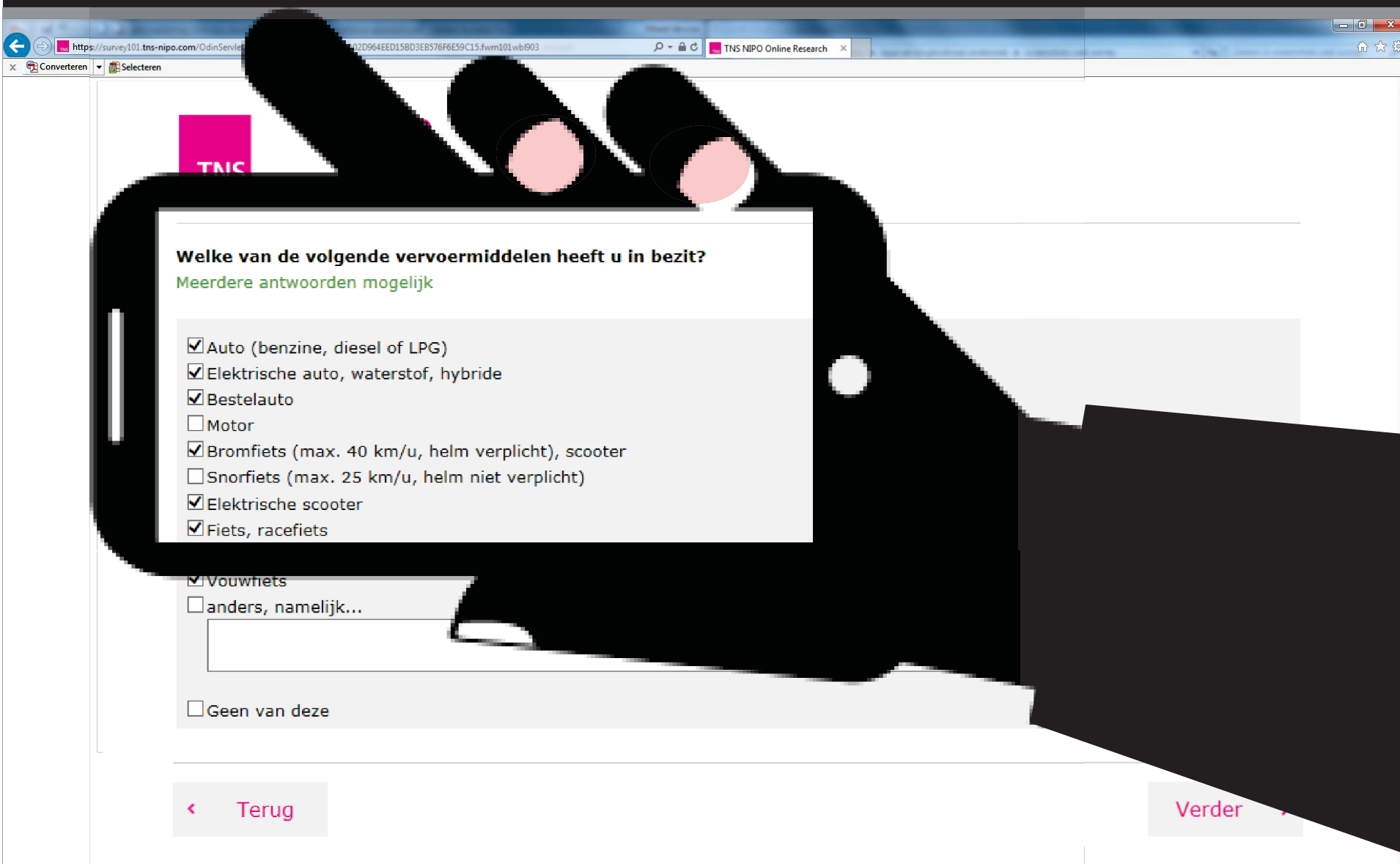
Meerdere antwoorden mogelijk

- Auto (benzine, diesel of LPG)
- Elektrische auto, waterstof, hybride
- Bestelauto
- Motor
- Bromfiets (max. 40 km/u, helm verplicht), scooter
- Snorfiets (max. 25 km/u, helm niet verplicht)
- Elektrische scooter
- Fiets, racefiets
- Elektrische fiets, e-bike
- Vouwfiets
- anders, namelijk...

Geen van deze

< Terug

Verder >



Welke van de volgende vervoermiddelen heeft u in bezit?

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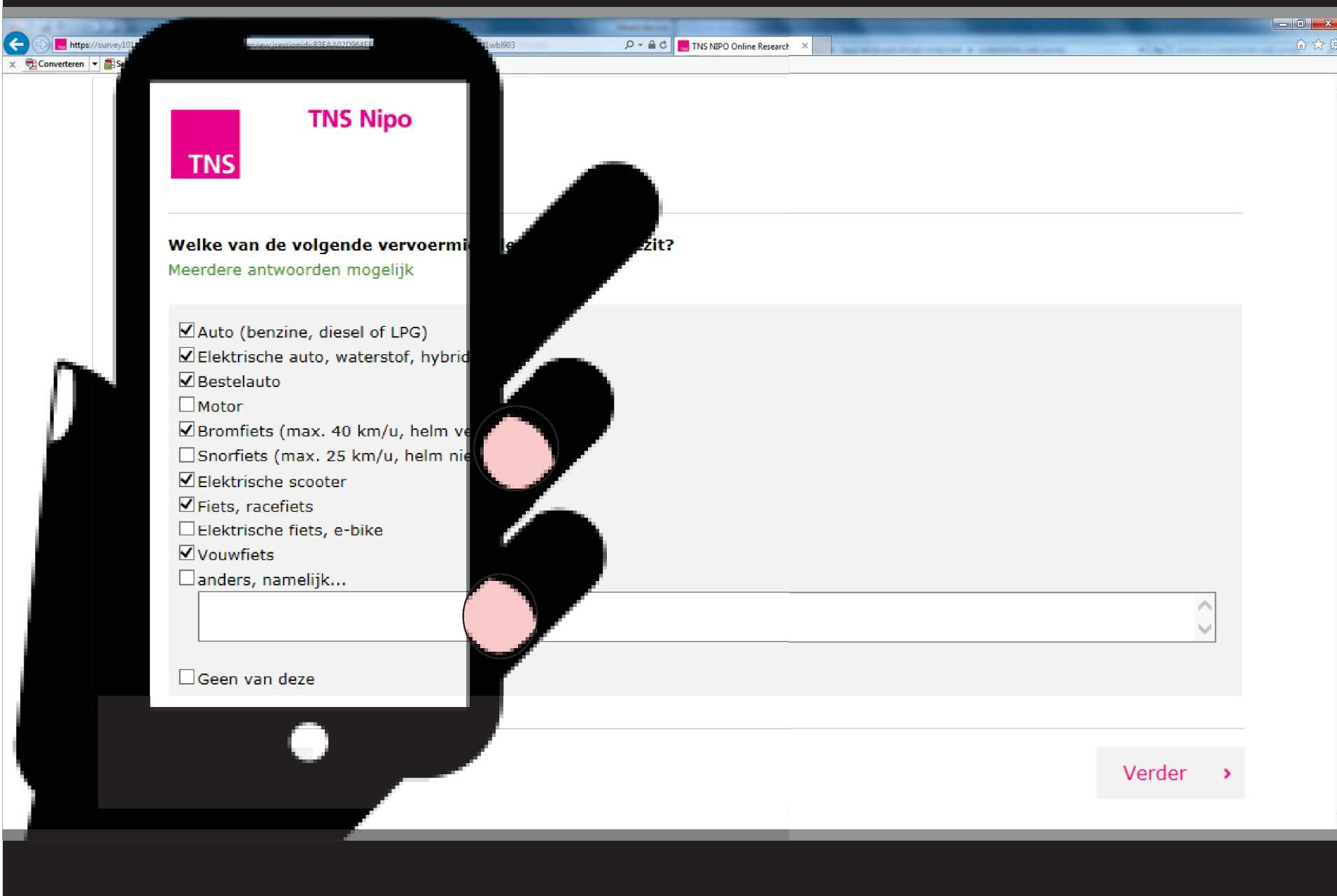
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Verder >



TNS Nipo

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- anders, namelijk...

Geen van deze



Research goals

- Do we **need to facilitate** respondents using smartphone or tablet?
- **How to** facilitate mobile response?
- What are **effects** on data quality and quantity?



SHARE OF MOBILE DEVICE SURVEY COMPLETION



Share of mobile respondents

- Meta-Analysis
 - Data from 168 studies
 - Data range from 2009 to 2016
- Two beta regression models (one per device)
- Accounted for:
 - Rise of mobile device use (month-by-month)
 - Type of survey (cross-sectional / longitudinal)
 - Research motive (academic /commercial)
 - Regional differences (NW-Europe, Rest of Europe, North America, other)
 - Mobile friendly or not



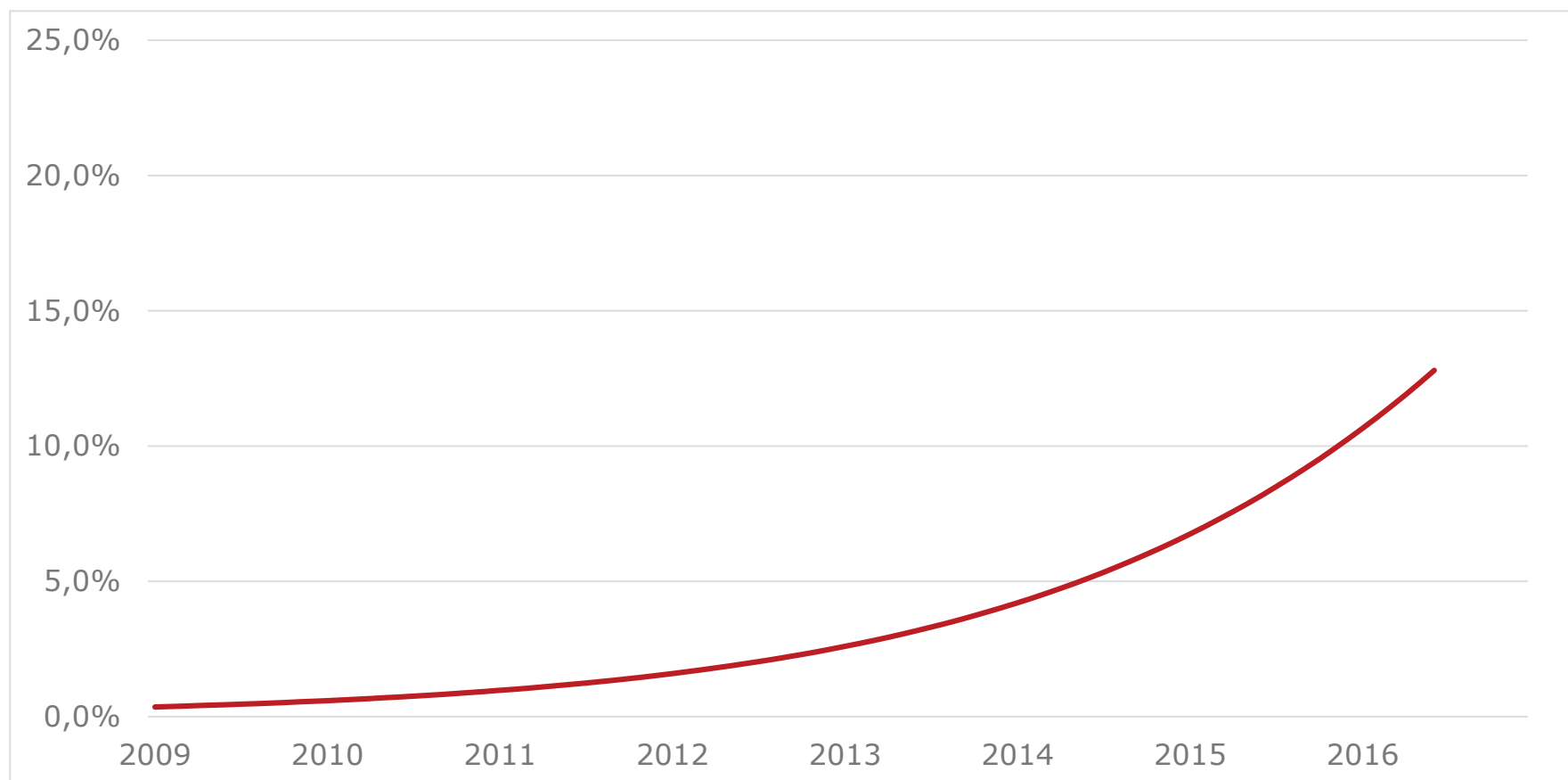
Share of mobile respondents

	Smartphone		Tablet	
	<i>est.</i>	<i>s.e.</i>	<i>est.</i>	<i>s.e.</i>
Months	0.0416	0.0012	0.0434	0.0006
Cross-Sectional	0.6430	0.0289	0.2159	0.0166
Commercial	0.5496	0.0346	0.3478	0.0186
Mobile Friendly	0.3173	0.0602	0.0859	0.0220
Rest of Europe	0.5350	0.0430	-0.7121	0.0359
North-America	0.4372	0.0356	-0.1755	0.0182
Other regions	<i>0.0040</i>	<i>0.0583</i>	-1.1031	0.0459
Target group: young	0.2984	0.0617	-1.2549	0.0423
Intercept	-3.6661	0.0193	-3.0890	0.0094
N	158		106	
Pseudo-Rho2	0.66		0.68	

Estimates in italics and grey are not significant. Ref.: Jan-2013, Panel, non-commercial, not mobile friendly in panel, North-West Europe, General population

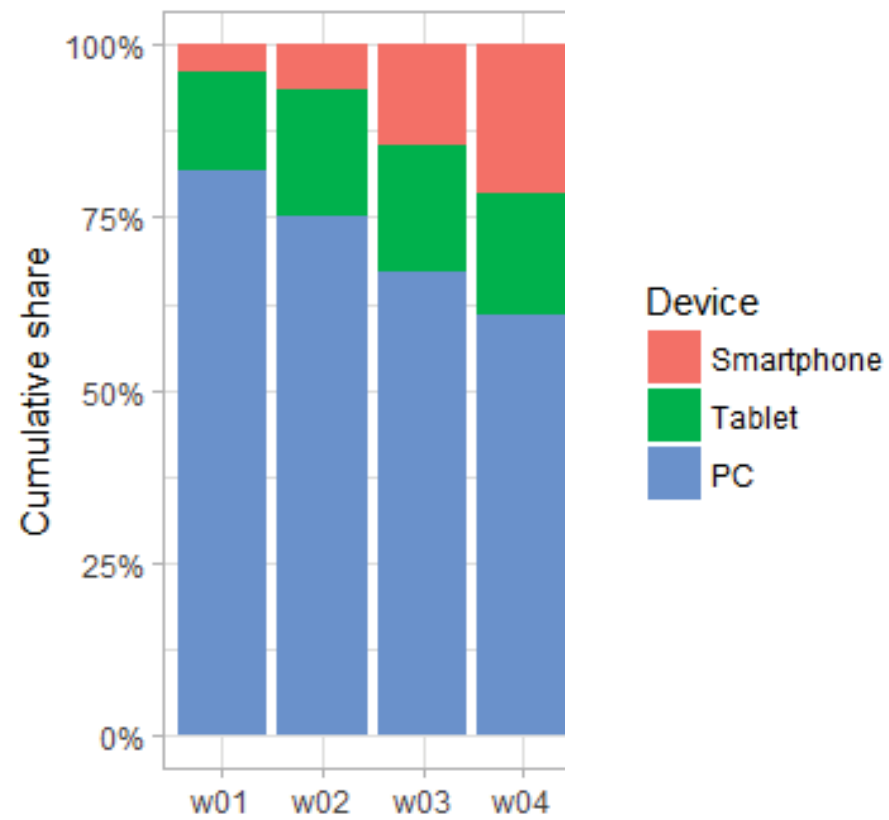


Share of smartphone respondents



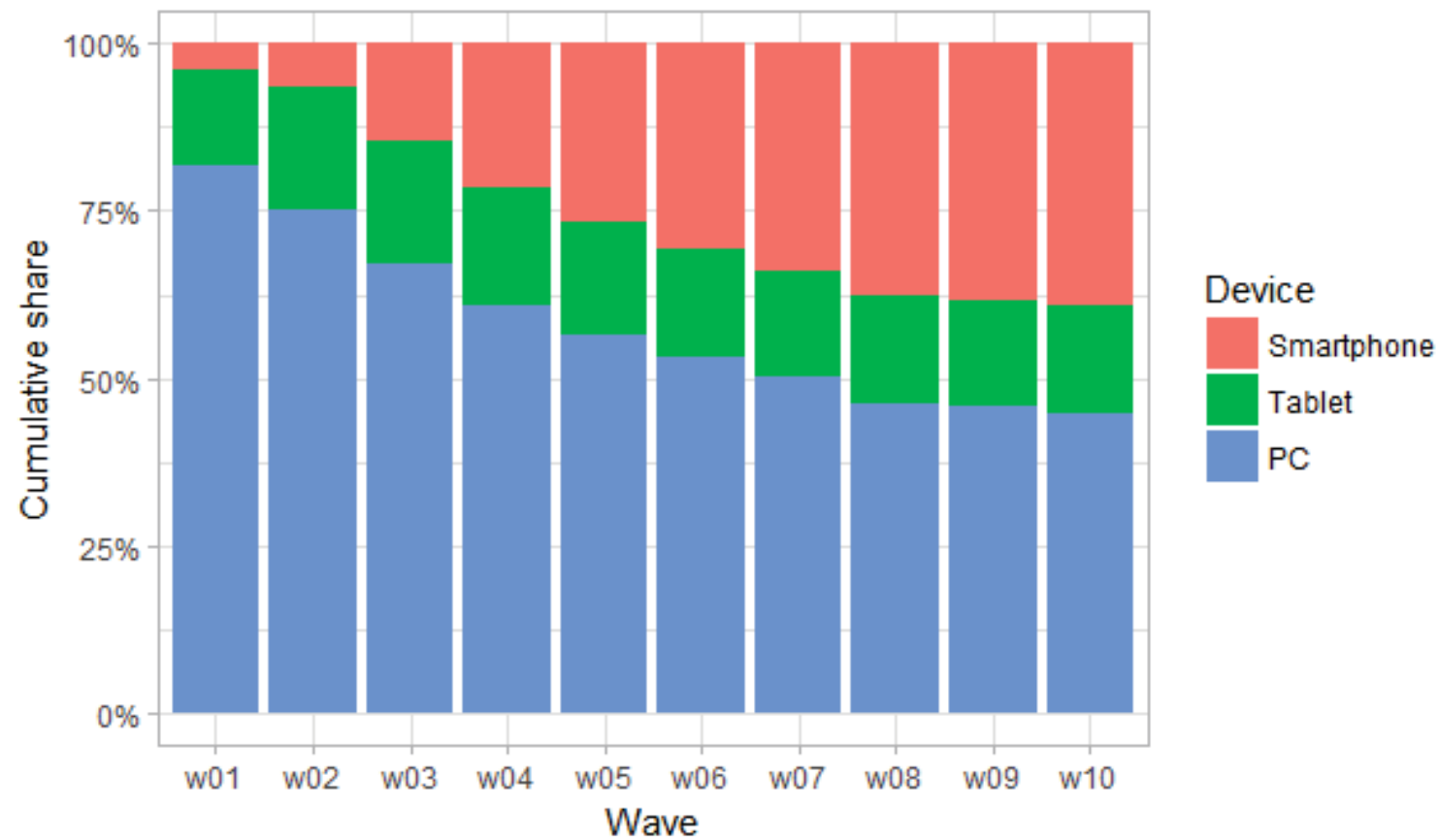


Multi-devices in MPN





Multi-devices in MPN





PROFILE OF MOBILE RESPONDENT



Profile of mobile respondent

[1] Meta-analysis of logit models

[2] Multinomial logit model

- Dependent (y) = device used
- Independent variables (x) =
 - Socio-demographics
 - Device access
 - Internet usage profile
 - Travel behaviour
 - Wave

- MPN Wave 1 – 4 pooled



Cat	Level	Smartphone est (s.e.)	Tablet est (s.e.)
Age group	25-34	0,512 (0,098)***	-0,307 (0,106)**
	35-44	0,193 (0,098)*	-0,436 (0,098)***
	45-54	-0,573 (0,103)***	-0,277 (0,086)**
	55-64	-0,752 (0,12)***	-0,489 (0,097)***
	65-74	-1,49 (0,205)***	-0,398 (0,114)***
	75 +	-1,789 (0,299)***	-0,569 (0,141)***
Gender	female	0,199 (0,061)**	0,147 (0,052)**
Education level	high	-0,276 (0,072)***	-0,104 (0,062).
Internet use profile	social	0,159 (0,044)***	0,001 (0,038)
	functional	0,278 (0,042)***	0,072 (0,038).
Device profile	smartphone owner	0,822 (0,12)***	0,169 (0,071)*
	tablet owner	0,291 (0,065)***	1,481 (0,067)***
	trad. devices in hh	-0,157 (0,025)***	-0,183 (0,022)***
Mobility profile	daily cyclist	-0,017 (0,069)	0,156 (0,057)**
	daily car driver	0,087 (0,072)	0,126 (0,06)*
	moped owner	0,251 (0,108)*	-0,095 (0,104)
	cars in hh	0,034 (0,037)	0,141 (0,031)***
Residential area	rural	-0,259 (0,11)*	-0,463 (0,099)***
Wave	2014	0,573 (0,138)***	0,158 (0,079)*
	2015	1,014 (0,135)***	-0,061 (0,086)
	2016	1,545 (0,12)***	0,023 (0,075)
Intercept		-3,448 (0,21)***	-2,502 (0,153)***

Profile of Smartphone User

- Peak in 25-34 y/o
- More female
- Less high educated
- More social en functional internet use profile
- Device access is key
- No association between device use and travel behaviour



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	35-44	0,193 (0,098)*	-0,436 (0,098)***
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Profile of Tablet User

- Peak in > 25 y/o
- More female
- Tablet access is key
- More daily bicycle users
- More daily car users
- Strong effect in number of cars in household
- Lower probability in rural areas



DESIGN FOR MIXED- DEVICE RESPONSE



Coping with mobile response

Three strategies:

1. Flag and control for mobile device response
2. Block mobile devices (access control)
3. Design a survey compatible with all devices



Design strategies

1. Mobile-first
2. Responsive layout
3. Adaptive design
4. Survey simplicity



Mobile-first

Smartphone:

The smartphone view shows a mobile browser interface. The status bar at the top displays 'Verizon', signal strength, Wi-Fi, and the time '10:43 AM'. The address bar shows 'survey.indiana.edu'. The survey content is displayed in a single column with a clear heading and a detailed question. The response options are radio buttons with corresponding text labels.

General Services

Overall, how satisfied are you with the services and support offered by UITS (uits.iu.edu) during the past year? (e.g., Support Center consulting at 812-855-6789, Student Technology Centers, email, wired and wireless network access, telephones, research computers, library online catalog, and administrative systems)?

- 1 Not at all satisfied
- 2
- 3
- 4
- 5 Very satisfied
- Not applicable

Desktop:

The desktop view shows a standard browser interface. The address bar contains a long URL. The survey content is displayed in a wider layout with a heading and a detailed question. The response options are radio buttons with corresponding text labels.

UITS User Satisfaction Survey

General Services

Overall, how satisfied are you with the services and support offered by UITS (uits.iu.edu) during the past year? (e.g., Support Center consulting at 812-855-6789, Student Technology Centers, email, wired and wireless network access, telephones, research computers, library online catalog, and administrative systems)?

- 1 Not at all satisfied
- 2
- 3
- 4
- 5 Very satisfied
- Not applicable

Overall, how important are UITS systems and services to your work or study?

- 1 Not at all important
- 2
- 3
- 4
- 5 Very important
- Not applicable

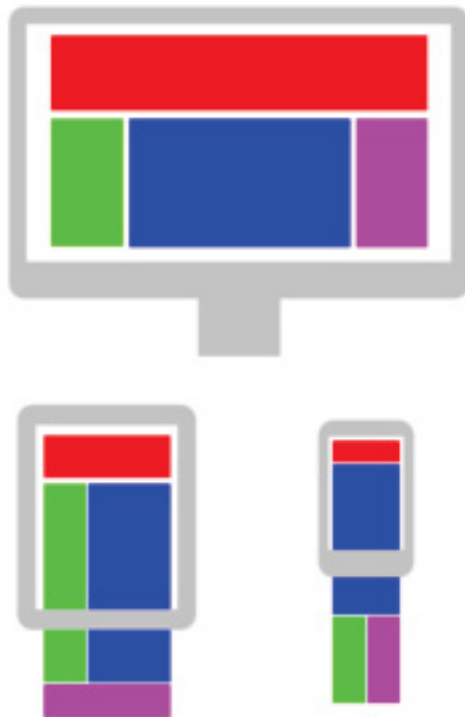
How would you rate your computer expertise?

- 1 Novice
- 2

Source: <http://hdl.handle.net/2022/21123>



Responsive layout



Source: https://nl.wikipedia.org/wiki/Responsive_webdesign



Source: <http://www.mailigen.com/blog/get-customer-feedback-with-responsive-online-surveys/>



Adaptive design



TNS Nipo

Is **daarnaast** een van de volgende situaties op u van toepassing?

Meerdere antwoorden mogelijk

- Ja, ik ben ook werkzaam in loondienst buiten de overheid
- Ja, ik ben ook werkzaam in loondienst bij de overheid
- Ja, ik doe ook vrijwilligerswerk
- Ja, ik volg ook een opleiding / studie / loop stage
- Ja, ik ben ook (gedeeltelijk) arbeidsongeschikt
- Nee, ik heb hiernaast geen (ander) werk / studie

- Weet niet/wil niet zeggen

< Terug

Verder >

Access ●●○○○ 11:10 96%

survey101.tns-nipo.com



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Survey simplicity

An example of the survey simplicity design principle is removing unnecessary, repeating or ambivalent words in questionnaires in both the question and answer categories.

An example of ~~the~~ survey simplicity ~~design principle~~ is removing ~~unnecessary, repeating or ambivalent~~ words in questionnaires ~~in both the question and answer categories.~~



CONCLUSIONS





Conclusions

- Rapid rise of mobile device use in surveys
 - In 2016 33% of the respondents used a mobile device
 - In wave 5 of MPN: 35% mobile
- Mobile respondents are younger, lower educated, more urban, ...
...an interesting hard-to-reach group
- Support and integrate mobile device use
 - Short and simple questionnaire
 - Responsive / adaptive design



THE END





Relevant publications

Zijlstra, T. Wijgergangs, K. and Hoogendoorn-Lanser, S. (forthcoming). Traditional and mobile devices in computer assisted web interviews. *Transportation research procedia*

Zijlstra, T. Hoogendoorn-Lanser, S. and Wijgergangs, K. (2017). The impact of survey completion with a mobile device in a longitudinal transport study. Paper presented at ETC 2017, Barcelona

Toepoel, V.. & Lugtig, P. (2015). Online surveys are mixed-device surveys. Issues associated with the use of different (mobile) devices in web surveys. *Methods Data Analyses* 9(2). 1-8.

Struminskaya, B.. Weyandt, K.. & Bosnjak, M. (2015). The Effects of Questionnaire Completion Using Mobile Devices on Data Quality. Evidence from a Probability-based General Population Panel. *Methods. Data Analyses* 9(2). 261-292.