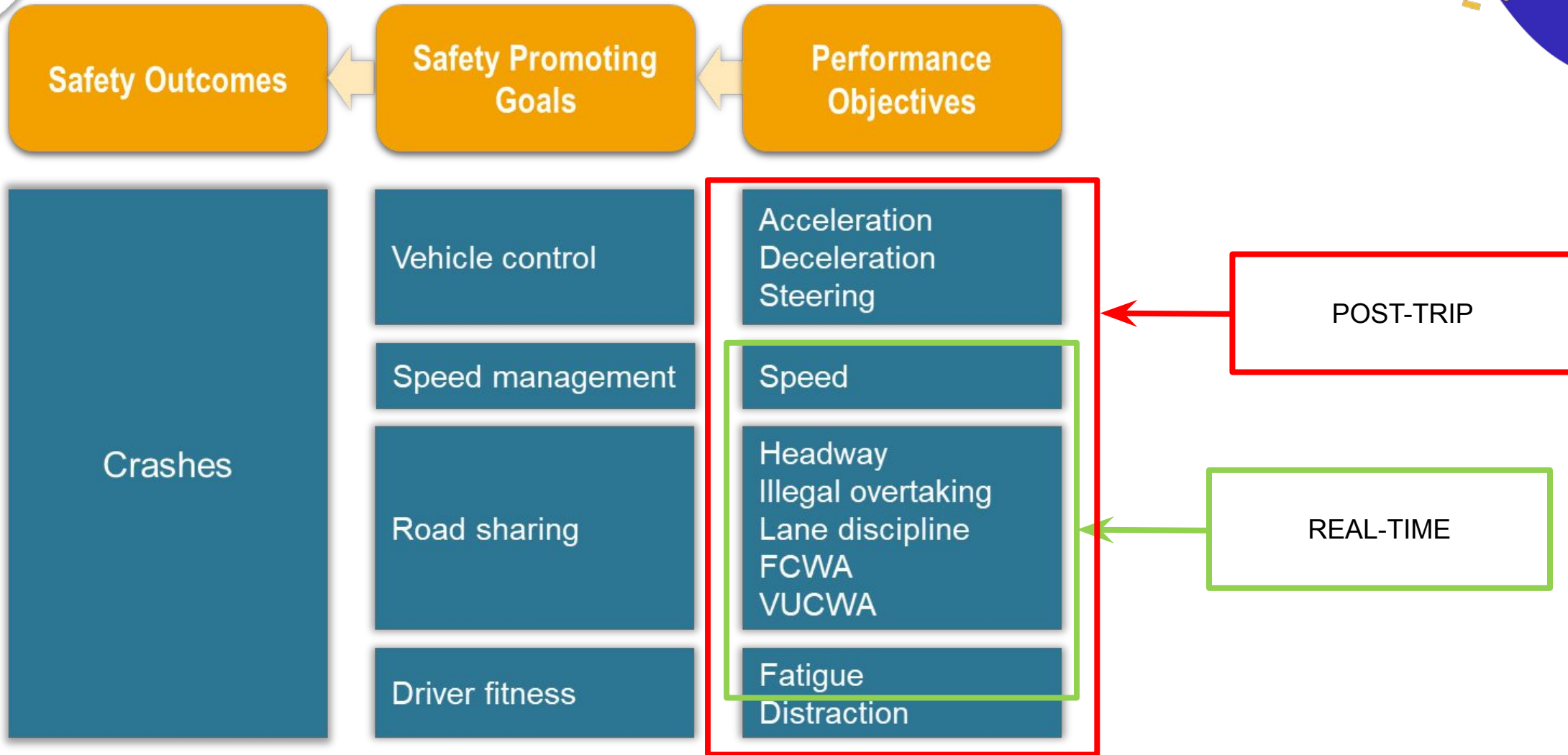




Effectiveness of interventions from the H2020 i-DREAMS project: A sneak preview

Kris Brijs, Muhammad Adnan, Veerle Ross, Ariane Cuenen, Yves Vanrompay, Muhammad Wisal Khattak, Christos Katrakazas, Eva Michelaraki, Ashleigh Filtness, Rachel Talbot, Graham Hancox, Laurie Brown, Evita Papazikou, Chiara Gruden, Geert Wets, George Yannis, Tom Brijs





Intervention: NO



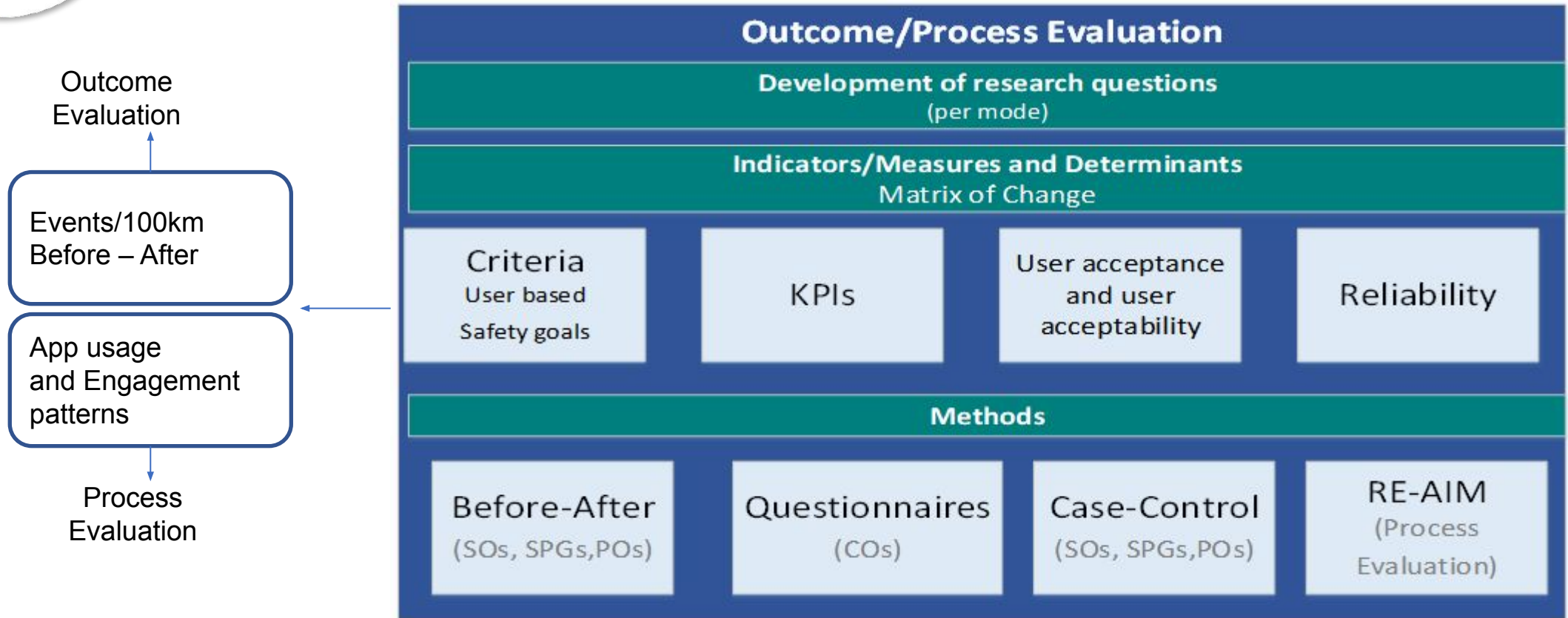
Intervention: YES
Real-time feedback



Intervention: YES
Real-time feedback
+ app (feedback)



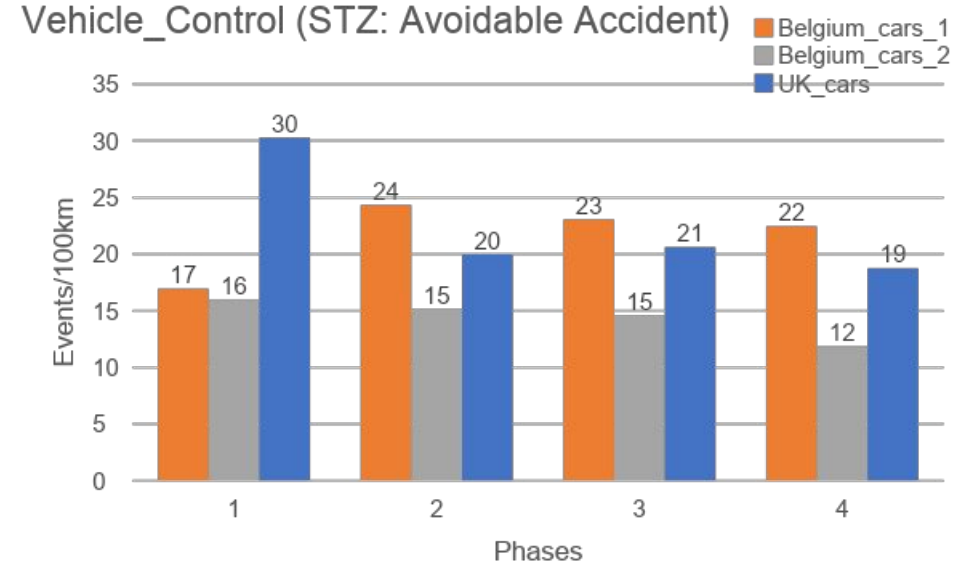
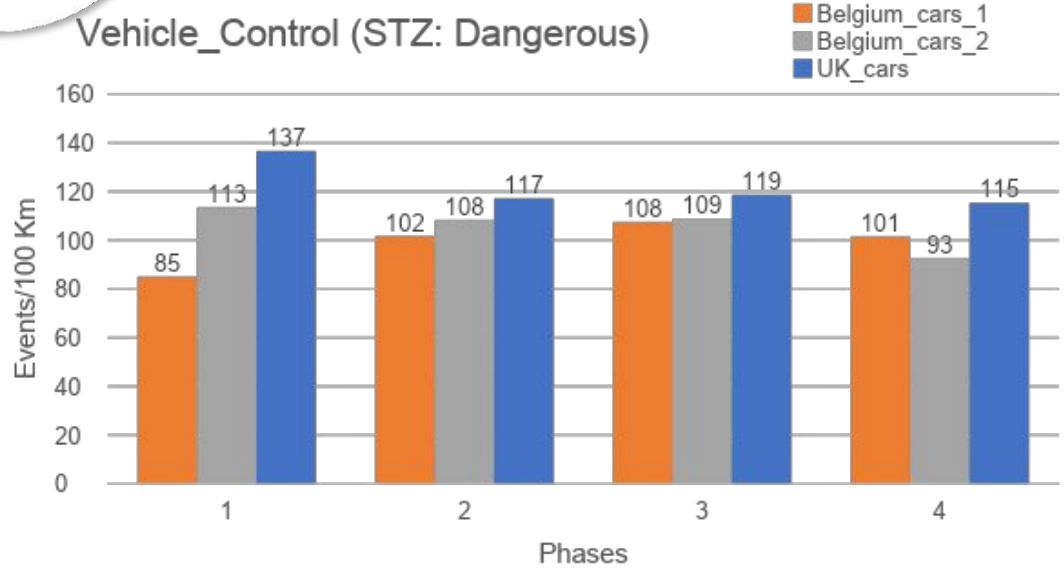
Intervention: YES
Real-time feedback
+ app & dashboard
(feedback + gamification)





Phases	Belgian drivers_1 (n=26)			Belgian drivers_2 (n=22)			UK drivers (n=25)		
	Trips	Distance Travelled (Km)	Events /100km (std.dev)	Trips	Distance Travelled (Km)	Events /100 km (std.dev)	Trips	Distance Travelled (Km)	Events /100km (std.dev)
Phase 1	1885	24,216	287.55 (125.81)	1763	25,381	264.15 (122.27)	2196	28,794	368.66 (241.49)
Phase 2	1837	25,375	317.05 (145.49)	1603	21,711	242.47 (116.13)	2414	26,326	323.74 (189.82)
Phase 3	1687	23,429	326.55 (131.12)	1495	21,836	242.79 (125.91)	2470	27,770	293.69 (185.52)
Phase 4	2399	34,531	315.82 (159.75)	2120	31,659	216.96 (140.38)	3222	41,361	280.30 (181.35)
Total reduction in events/100km from phase 1 (%)						17.86%			23.96%

*Events/100km are mentioned as total events occurred for all risk indicators (POs) in danger and avoidable accidents phases of the STZ



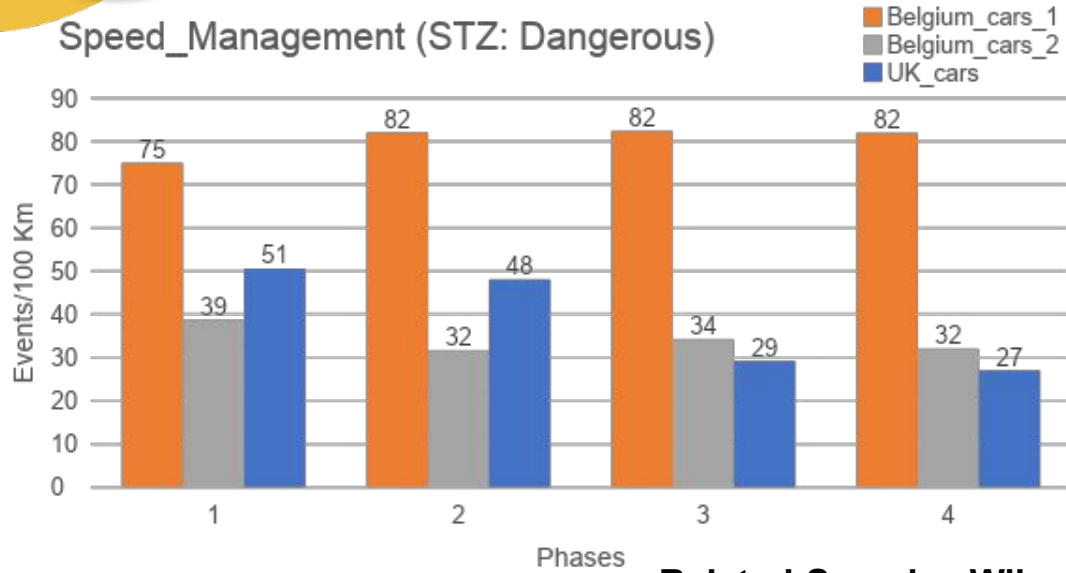
Related-Samples Wilcoxon Signed Rank Test

Vehicle Control – Avoidable Accident (UK Cars + Belgium Cars 2)

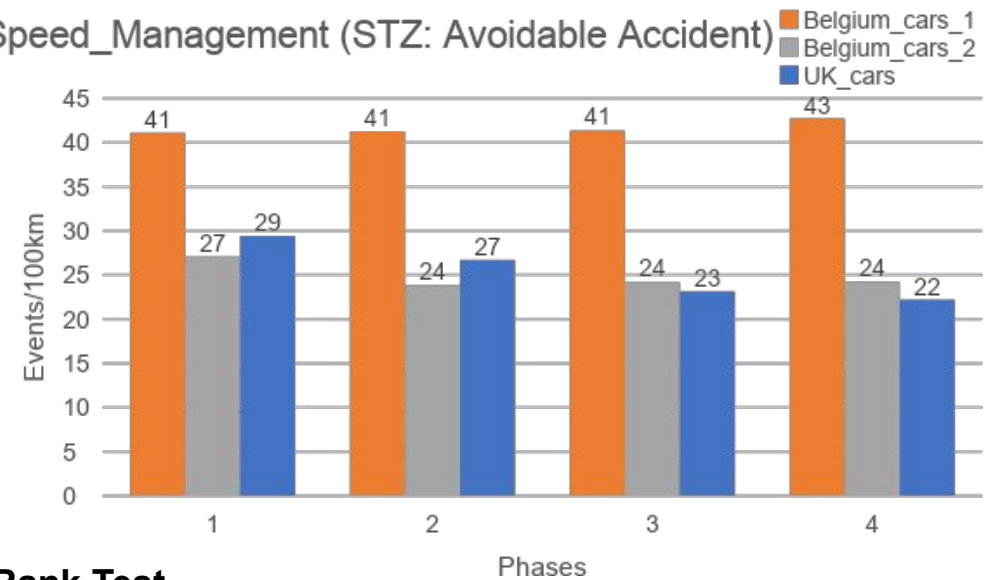
Sig.	Phase 1	Phase 2	Phase 3
Phase 1			
Phase 2	0.024		
Phase 3	0.010	0.731	
Phase 4	<0.001	0.015	0.098



Speed_Management (STZ: Dangerous)

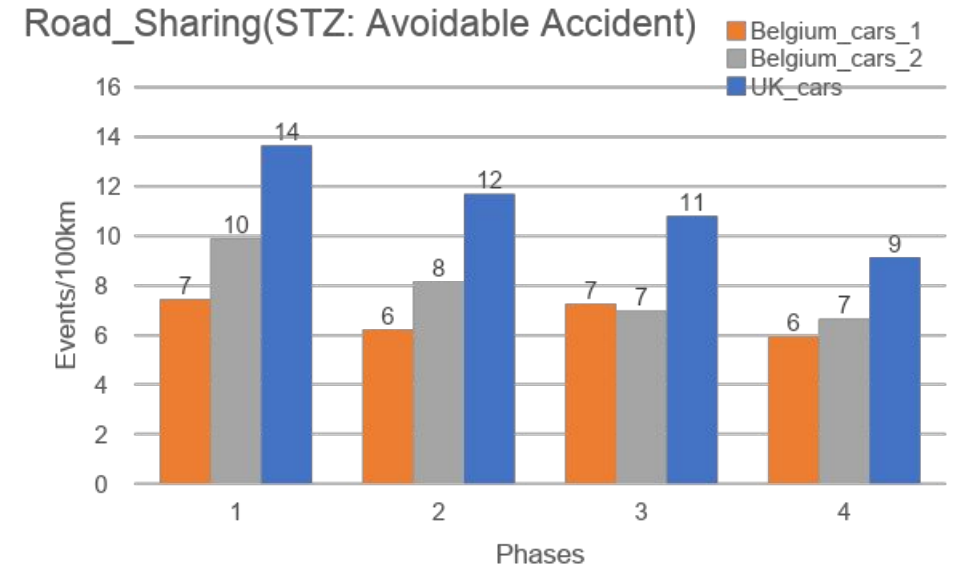
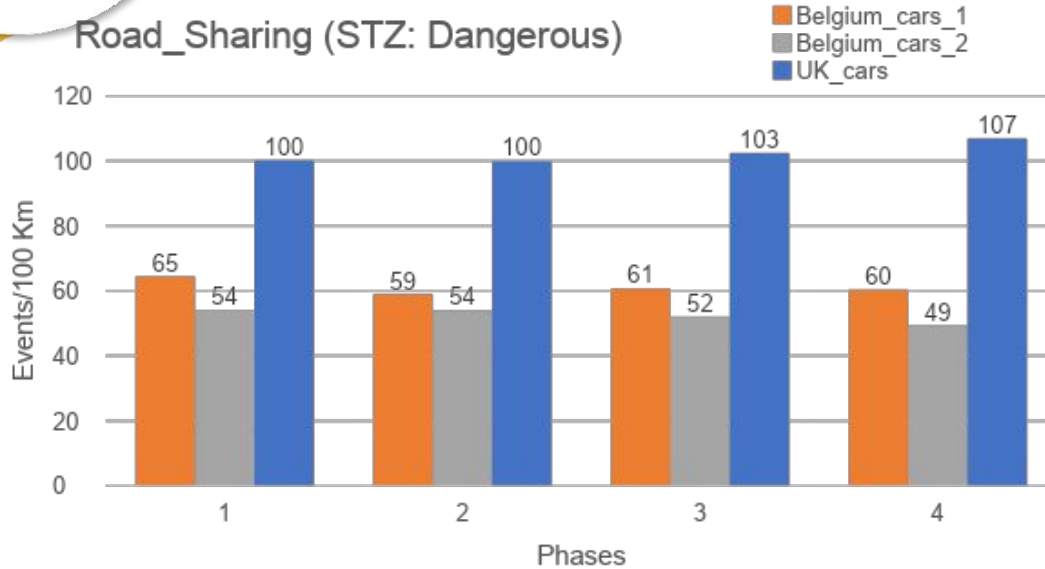


Speed_Management (STZ: Avoidable Accident)



Related-Samples Wilcoxon Signed Rank Test
 Speed – Avoidable Accident (UK Cars + Belgium Cars_2)

Sig.	Phase 1	Phase 2	Phase 3
Phase 1			
Phase 2	0.050		
Phase 3	0.001	0.122	
Phase 4	<0.001	0.037	0.341



Related-Samples Wilcoxon Signed Rank Test
Road Sharing– Avoidable Accident (UK Cars + Belgium Cars 2)

Sig.	Phase 1	Phase 2	Phase 3
Phase 1			
Phase 2	0.008		
Phase 3	<0.001	0.072	
Phase 4	<0.001	<0.001	0.039



BC : Wave 1
Open app: N= 1127
Total interactions: N= 3437

BC: Wave 2
Open app: N= 1641
Total interactions: N= 5207

UKC
Open app: N= 2204
Total interactions: N= 6488

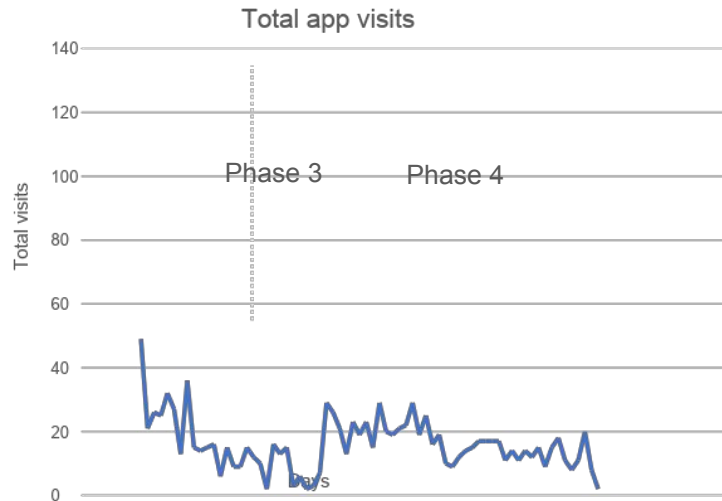
Functionalities within the app	Belgium cars W1 (N=26 drivers)		Belgium Cars W2 (N= 23 drivers)		UK Cars (N= 24 drivers)	
	N	Percentage	N	Percentage	N	Percentage
Open the app	1127	32.79%	1641	31.52%	2204	34.18%
Open the trend menu	38	1.11%	68	1.31%	87	1.35%
Open the goal menu	202	5.88%	377	7.24%	519	8.05%
Join a goal	71	2.07%	156	3.00%	138	2.14%
Open the con menu	116	3.38%	141	2.71%	141	2.19%
Open the fact menu	247	7.19%	321	6.16%	425	6.59%
Open the pro menu	122	3.55%	163	3.13%	160	2.48%
Open the tip menu	155	4.51%	209	4.01%	240	3.72%
Open the leaderboard menu	158	4.60%	362	6.95%	910	14.11%
Open the message menu	198	5.76%	230	4.42%	224	3.47%
Open the scores menu	334	9.72%	497	9.54%	432	6.70%
Open the trip menu	669	19.46%	1042	20.01%	968	15.01%
Grand Total	3437	100.00%	5207	100.00%	6448	100.00%

goals

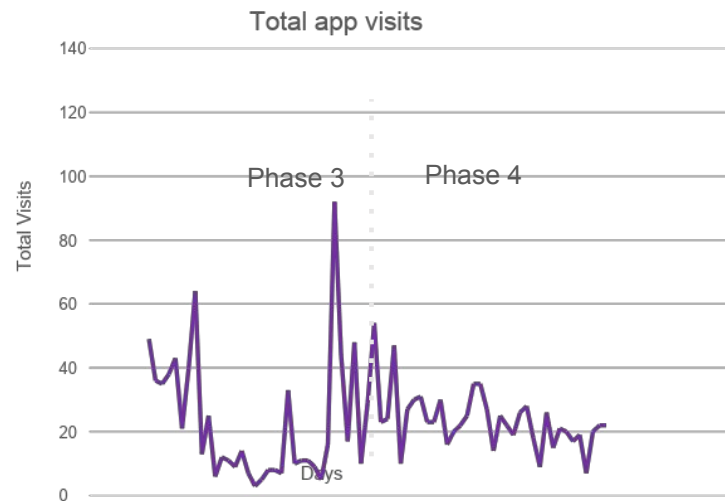
leaderboard

scores

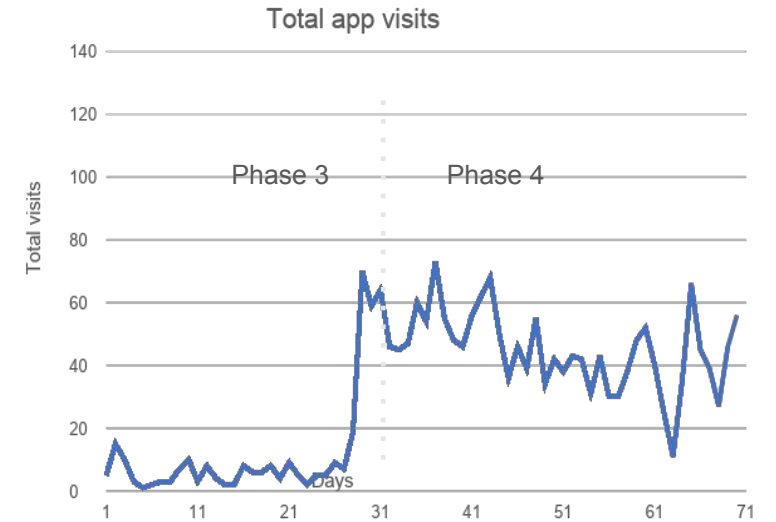
trips



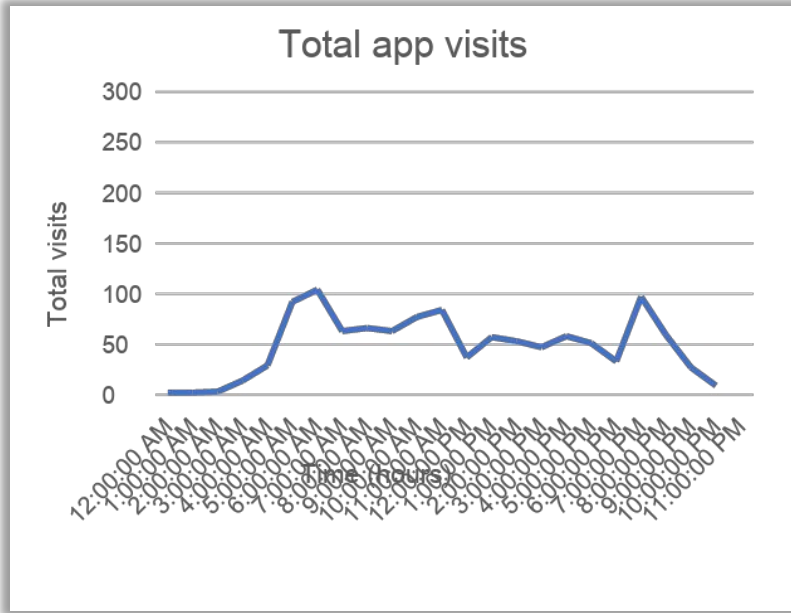
Belgian car drivers Wave 1



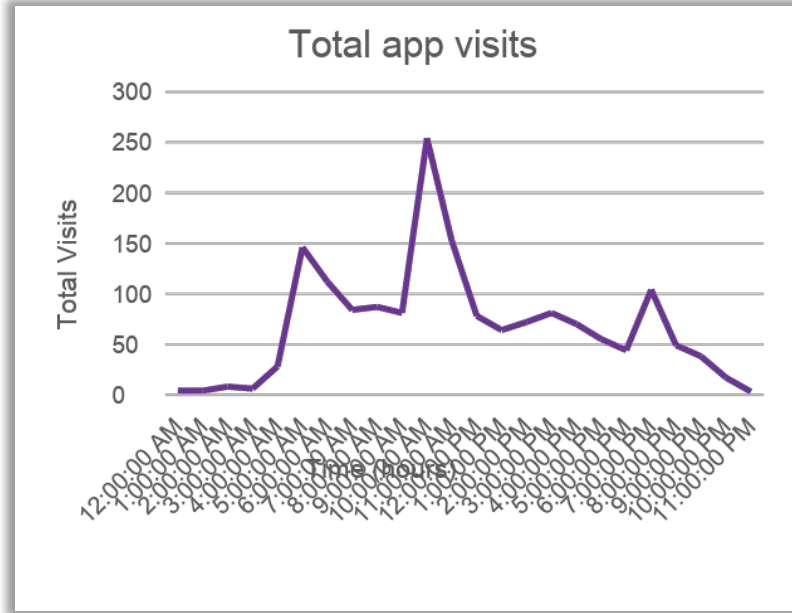
Belgian car drivers Wave 2



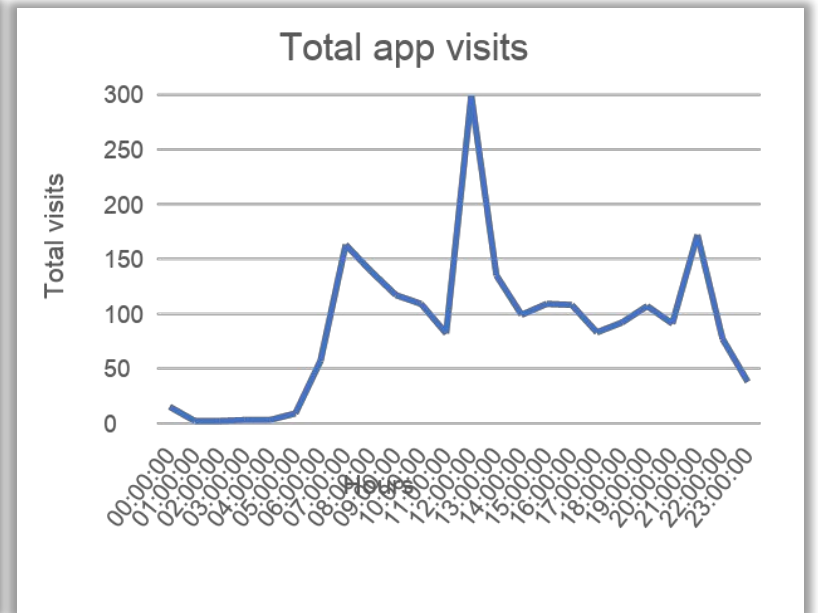
UK car drivers



Belgian car drivers Wave 1



Belgian car drivers Wave 2



UK car drivers

- Belgium car drivers , wave 1 show undesirable results, likely biased by changing mobility patterns during different waves of the COVID-19 pandemic.
- Belgium car drivers, wave 2 and UK car drivers show more consistent results – especially events/100km are reduced significantly from phase 1 to phase 4 for Avoidable accident STZ.
- Significance results showing vital role of gamification features within i-DREAMS App, which are active in Phase4.
- Considerable app usage of drivers has been noticed (more popular features : goals, trips , leaderboard and scores) and following the expected patterns of App visits.

- Evaluation of Interventions
 - Other modes (Trucks, Buses)
 - Countries (Greece, Germany, Portugal)

- More Rigorous analysis
 - ANOVA (Repeated Measures)
 - Incorporating Socio-demographic and psychological factors (Questionnaire data)
 - Dose-Response Analysis



Thank you!

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