

Evaluation report

App for businesses
Baron Mobility

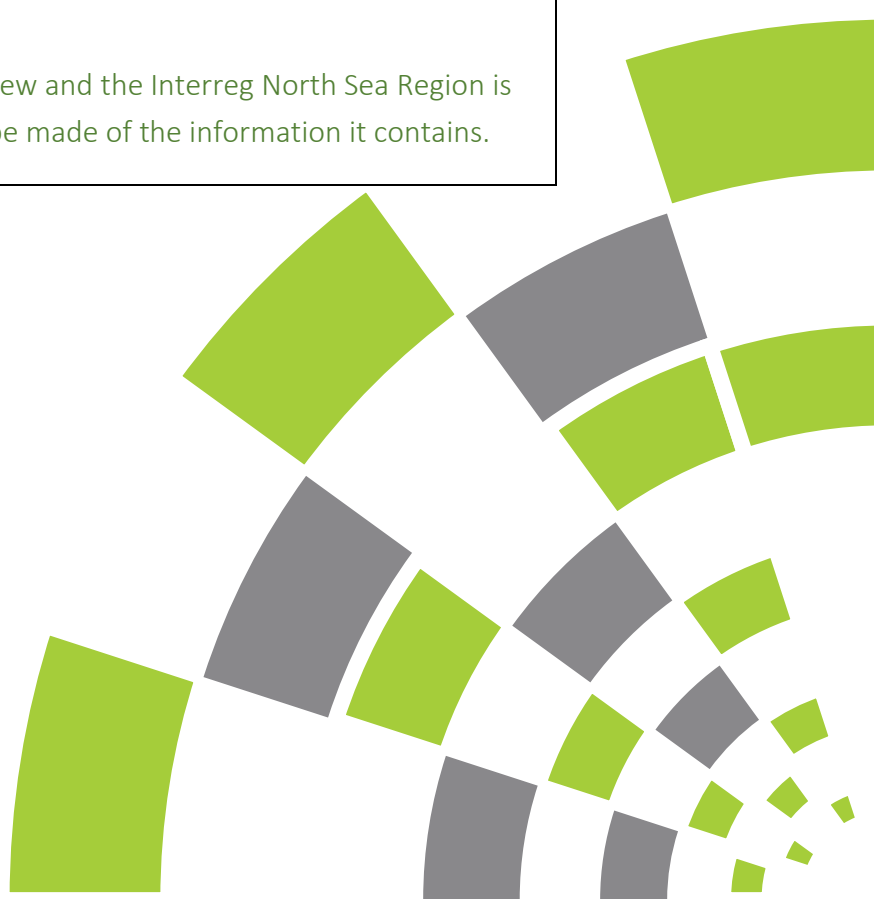
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Disclaimer:

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Short description

The interest in cycling has increased and more and more companies are interested in bicycle leasing to motivate their employees and/or to improve the ecological footprint of the company. However, there is neither data on how often the company bikes are used, nor how many employees commute to work by bike. Mobile applications with a focus on cyclists who commute to work by bike have the potential to increase the number of cycling commuters due to gamification features, routing- and tracking-options and other features but also support the collection of data about commuting behaviour of employees. In this pilot, a mobile application was launched in several companies in which commuters were asked to register and to participate in the Company Challenge. In this six-week challenge, employees were motivated to cycle to work using competition between colleagues and the potential to win prizes. Next to the Company Challenge, two companies also launched an additional, internal challenge with an internal dashboard and own prizes in order to motivate their employees to cycle more. In order to evaluate whether the app improves the motivation of commuters to cycle, the app registered bicycle usage in kilometres (average/person), average cycling speed, days the bike is used, number of people that installed the application, and the use of a leased bike. In addition, the app questioned its users through pop-up questions when first opening the app and secondly at the end of the pilot. Also, a questionnaire was sent to the participating companies after the closure of the Company challenge and internal challenge. Nine of the 16 participating companies gave additional qualitative feedback.

Type of ITS

App for businesses with a gamification aspect, giving rewards when cycling and stimulating competition with other companies and with other employees within one company.

Timeline

On May 24 2021, the app for employees in the participating companies was launched. The app ran for 6 weeks, until July 4th, 2021. The internal challenges ran for 4 weeks, from July 26th until August 30th in one company and from May 20th until July 5th in the second company.

Hypothesis

A mobile application with gamification features and rewarding system leads to more (or longer) cycling trips by commuting employees in the selected companies.

Data sources

- Number of app-users and their registered data such as unique ID of the cyclist, date, time, kilometres, geo locations, frequency of cycling of each cyclist.
- Survey results (pop-up questions app users): starting survey when registering and final survey at the end of the company challenge
- Survey for participating companies (9 out of 16 gave feedback)

- Survey specifically for the internal challenges (completed in 2 companies: Optadata and U-Serv)
- Report of meeting with project managers about the evaluation of the pilot (October 2021)

Analysis

Report of the pilot

At the start of the challenge, on May 24th 2021, the initial number of users of the app was registered as well as the bicycle usage in frequency of biking, and the number and type of lease bikes used through pop-up questions when first opening the app. This first survey (at the start of the company challenge) was held as a baseline measure, in order to be able to track any changes in cycling behaviour and their motivation to commute to work by bike. A follow-up survey with pop-up questions was launched at the end of the company challenge, in July 2021.

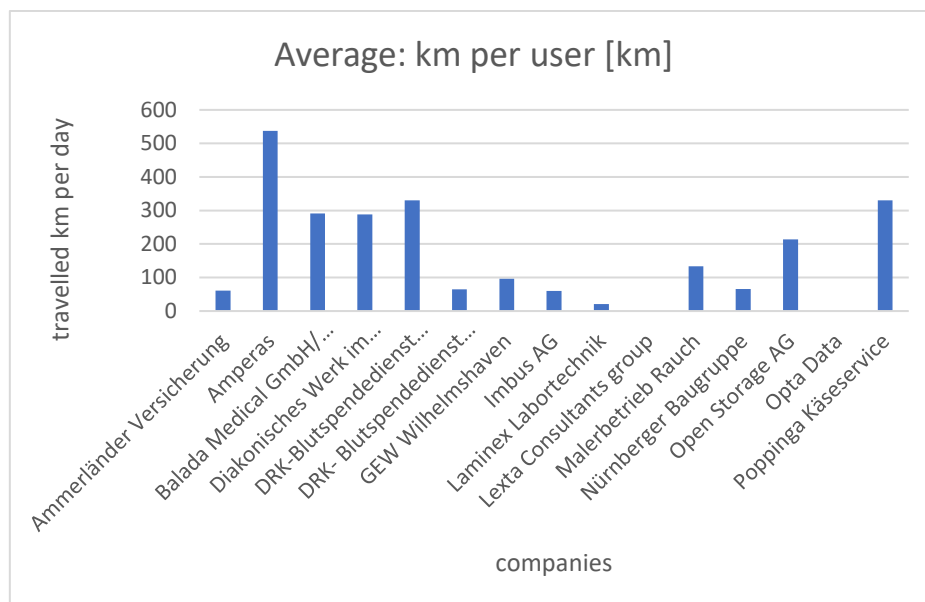
Number of users of the app and registered data

16 companies took part in the company challenge which ran from May until the beginning of July. The number of registered users as well as active users¹ in each of the participating companies was very different, as outlined in the table:

Company	Number of registered users	Active users	Usage in km (total)
DRK Blutspendeinst Nord-Ost	62	50	16.504
Diakonie	58	32	9.299
DRK Blutspendedienst BaWü	42	28	8.089
Balada Medical	9	8	4.300
Opta data	75	19	4.052
U-Server	8	5	1.653
Ammerländer versicherung	13	9	1.494
Nürnberger Baugruppe	11	7	933
Imbus	11	5	482
Amperas	4	3	183
Open storage	3	1	66
GEW	8	1	65
Lexta	7	3	62
Laminex	1	1	60
Poppinga	0	0	0
Malerbetrieb Bodenbeläge	0	0	0
TOTAL	312	172	47.222

¹ Active users are defined as users who actually open the app and track at least one route during the challenge.

If we zoom in on the difference between the number of registrations and the active users of the app, we observed that, in most cases, about half of the registered participants can be defined as active users who actually opened the app and tracked at least one route during one challenge. Overall, the Company Challenge ended up in a total number of 47.222 km travelled by the 172 active users which is equal to 11.766 kg CO2 saved in total.² On average, each active participant in the company challenge travelled 275 km over a period of 6 weeks.



In addition, two companies - Optadata and U-serv - also launched an internal challenge in July which lasted for 4 weeks and which resulted in the following number of participants and total number of km:

Company	Number of registrations	Active users	Usage in km (total)	CO2 Savings
Optadata (26.07.2021 – 30.08.2021)	75	47	8769	2099
U-server (05.07.2021 – 13.08.2021)	8	4	1762	445

Survey results participants

The **first survey**, launched when employees registered for the company challenge in May 2021, was completed by 156 participants. About 45,5% of the participants reported to currently use a lease bike to commute. Over 11% reported their willingness to use a lease bike in the future. The results further show a large group of participating employees who already cycle daily or more than once a week for commuting (46,7%) while, in contrast, also 44,3% indicated to commute by bike rather infrequently or even rarely. More outspoken is the number of participants who regularly cycle for shopping or leisure activities: about

² “Concerning CO2 savings, the following calculation was made: 0,120 x 1,9= 0,228 kg/km by bike.”

65,3% of the participants reported to cycle daily or more than once a week for these reasons. On average, the participants reported to cycle around 45 kilometres per week.

Another **survey** was conducted at the **end** of the company challenge in July 2021. In total, 72 participants completed this follow-up survey via pop-up questions in the app. Due to the lower number of participants, it is important to be careful in drawing conclusions from the survey. Also, the frequency of commuting by bike could not be fully compared to the answers in the first survey as other answer categories were used. However, generally, the survey results make clear that the participants in the survey used their bike for commuting more often due to the challenge. In particular, while 46,7% of participants indicated in the first survey that they commute by bike more than once in a week, this number increased up to 58,9% in the closing survey. Furthermore, the survey included some questions to measure participants' motivation to cycle more due to the app. In general, 43,8% of the survey participants reported to cycle more since using the app: some of these participants reported to regularly cycle longer distances (60,3%) while others mentioned an increased frequency of cycling (69,9%). Participants (39,7%) particularly liked the fact that the app includes the opportunity to network with other participants. In addition, their motivation to cycle more has also to do with being able to record their routes via the app (45,2%), being able to see their own statistics in the app such as distance, CO2 savings and calorie consumption (35,6%) and being able to check the ranking with other participants (30,1%). To a lesser extent, the contribution to a research project (16,4%) and the ability to check their position in the ranking with other companies (12,3%) motivated participants to use the app. Finally, it is also important to acknowledge that 53,4% of the app users reported that they are willing to cycle more for commuting in the future.

Finally, some comments in the open section at the end of the survey included some interesting suggestions for improvement of the app. According to the participants, the app could be improved when adding a chat function, a registration of altitude and a possibility to rotate profile picture to the app. Also, an integration with other apps recording workouts with pulse and heart rate would be valuable.

Survey among representatives of the participating companies (9 gave feedback)

After the Oldenburg Company challenge, a short survey was conducted among the participating companies. 9 out of the 16 participating companies gave feedback: Optadata (also internal challenge), Openstorage, Lexta, DKR, DWKR, Balda, Amperas, AVVVaG. Unfortunately, the company U-Serv where an internal challenge was launched too, did not participate in this survey.

Overall, the companies were rather positive about the company challenge and the app with gamification features. Although the number of engaged participants in the companies was quite different, all companies showed willingness to proceed with the challenge in the future. Importantly, however, is that the company challenge is considered as having few impact on the motivation to cycle for commuting. Three respondents explicitly mentioned that the participants in the challenge were those employees that already cycled a lot. So, according to these representatives of the participating companies, the challenge motivated cyclists to cycle more but did not convince people who do not commute by bike to cycle more. To note, this seems to be in line with the survey results as 46,7% of the participating employees indicated at the start of the challenge that they already cycle daily or more than once a week for commuting. The respondents also discussed how to motivate more people to participate in the challenge, and thus how to motivate those who do not yet commute by bike.

First, an internal challenge could be more convincing because of the direct incentives through receiving points and because colleagues learn to know each other better (it allows 'networking'). Making use of an own ranking/evaluation with own prizes on the one hand, and a real team competition among the participating companies on the other hand could contribute to this. This was also supported by the qualitative feedback provided by the company in which an internal challenge was organised. The representative of the company described that the internal challenge was evaluated in a very positive way and attracted more participants than the general company challenge because of the internal system of earning points and internal competition and ranking.

Second, the value of subsequent short challenges over a longer period of time was suggested including regular advertising of preliminary rankings or results in each company.

Third, several technical improvements of the app were formulated too as the companies assessed the handling of the Ciclogreen app as not satisfactory. For instance, collected data such as participant identification data, the number of km cycled, the route recordings were sometimes incomplete. An integration of the Ciclogreen app into other apps or devices would also help to improve the use of the app.

Impact

The Oldenburg Company Challenge pursued a gamification approach and measured the impact through pre and post counting of the bike use of the app-users and 2 short surveys (pre and post) in order to evaluate changes in behaviour due to the use of the app.

If we look at the overall objectives of the pilot, we may assume that the Oldenburg Company Challenge resulted in an increased cycling use. In the closing survey, 43,8% of the participants reported to cycle more since using the app, particularly by means of cycling longer distances or cycling more often. Indeed, when considering the number of participants who indicated to commute by bike more than once a week, we found an increase from 46,7% at the beginning of the challenge up to 58,9% at the end, which equals with an immediate increase of 12,2% of participants who commute by bike more than once a week. Of course, an important note here is that there might have been other influencing factors too, such as better weather conditions (the challenge took place in spring/summer) or the end of the COVID-19 restrictions, which may have motivated people to cycle more often during the challenge. Nevertheless, it gives us some indications on the impact of the Company Challenge.

Also, when taking into account the people who would like to cycle more in the future, we can expect an even higher increase in cycling use in the long term. For instance, 53,4% of the app users reported that they are willing to cycle more for commuting in the future. To compare, in the general BITS survey, collected among a diverse group of respondents within Europe, 30,7% of the respondents indicated their willingness to cycle more to work in the future. It is important to add here that all respondents of this company challenge survey were people registered in the Company Challenge and thus already had an interest in cycling to work. As mentioned above, at the start of the challenge, we found that almost half of the participants already cycled daily or at least more than once a week for commuting. The finding that the participants in the challenge were mainly those employees that already cycled regularly, was also supported by the survey among the representatives of the participating companies. Based on our survey data, it is rather difficult to say if the challenge convinced more people, who did not commute by bike yet,

to take up cycling. Overall, we assume that not all people willing to cycle more for commuting actually transform their willingness into action. Therefore, an immediate increase of up to 53% in cycling use should not be expected.

Experiences project managers

A meeting with the project managers took place in October 2021 after the closure of the Company Challenge and internal challenge in two companies. The project managers of Baron Mobility experienced the pilot as successful. Despite the large differences in participation rate in the 16 companies, particular gamification features such as being able to network (cycling together), to win prizes or to see own statistics as well as the companies' management of the communication/advertisement strategy such as having one representative who motivates employees to participate or resolves registration problems seem to be determining in motivating employees to take part in a challenge to cycle more. The project managers also suggested that having internal prizes (as was the case in the internal challenge), sponsored by and tailored to the company, may strengthen the motivation of employees. In a similar vein, the clearly defined and short duration of both the company and internal challenge was put forward by the project managers as important in keeping app users motivated. Overall, when discussing the impact of the challenge on the cycling behaviour of employees, the project managers felt that the app actually motivated different target groups of employees to cycle more: those employees who already commuted by bike as well as those who commuted by bike rather infrequently or even rarely before the start of the challenge.

According to the project managers, the pilot also faced some challenges. First of all, there were some problems related to the technical features of the app (e.g. some functions did not work well) on the one hand and to the communication and collaboration with the Spanish app provider Ciclogreen on the other hand. Second, some features of the app could not be fully tested or evaluated in this pilot as the ranking between companies in this pilot was not reliable due to the large differences in company size. The project managers assumed that not only internal competition within one company but also competition between companies of similar sizes may be successful in reaching the goal of increasing cycling.

To conclude, the project managers are very satisfied with this pilot and its results. The added value of the pilot for the project managers is that they were able to assess what worked and what worked not well so that they can implement this type of ITS among their clients in the near future. They will definitely recommend this type of ITS to others.

Conclusions

The main question of this pilot in the BITS- project³ was whether the number of cyclists for commuting and kilometres cycled can be increased by means of an interactive mobile application with gamification features. If we consider the immediate increase of 12% of participants who commute by bike more than once a week as well as a high willingness to cycle more for commuting in the future among 53% of the participants, we can conclude that the main goal of this pilot is reached. We can assume that a short, well-defined company challenge, such as the Oldenburg Company Challenge or an internal challenge tailored to

³ Goal: an increase in cycling use with 10% and a reduction of CO2 emission with 9% within target groups due to the implementation of ITS solutions

and managed by the company, may lead to an increase in cycling use among the particular target group of regular commuters by bike, resulting in a higher number of km cycled – due to the longer distances cycled and a higher frequency of commuting - and accordingly a reduction of CO2 emission. Although it seems that gamification features have less impact on cycling motivation than previously expected, this pilot reported the added value of having the opportunity to network and cycle together with colleagues by the use of ITS technology. Accordingly, we also assume that the increase in cycling use among the commuters by bike may have a stimulating effect on other colleagues in the long term and that this type of ITS, eventually, may lead to an increased uptake of cycling among those who do not commute by bike yet.