

Congratulations !

Welcome to **SafetyNex** Experience

N_x **SafetyNex**

Driver

- Warns the driver before danger
- User friendly text to speech HMI
- Proposes individual advices periodically

Car Insurance

- Estimates driving risk profiles
- Reduces road accident rate by 20%
- Pay as you drive / Pay how you drive
- Allows to launch prevention programs
- Silver and beginners coaching

Car manufacturer

- Smart navigation for ADAS
- Real time monitoring for Autonomous car

Mass marketer

- Rewards good drivers (nudge theory)
- Enhances customers loyalty

Fleet manager

- Reduces loss costs
- Supervises professional drivers

<http://www.safetynex.net>



NEXYAD 95 rue Péreire 78100 Saint Germain en Laye, France +33 139 04 13 60 <http://www.nexyad.com>

NEXYAD

SafetyNex

user guide

ALPHA TEST v2.208
(for referenced bugs, see*)

NEXYAD thank you to be an **ALPHA tester**.
Please don't hesitate to tell us about your
observations (unknown bugs, wishes, user
practical brakes, etc ...) to Olivier BENEL
obenel@nexyad.net

For a technical help
Call [+33 \(0\)1 39 04 13 60](tel:+330139041360)

(*) Referenced Bugs

. Highway on-ramp entries: The last speed limitation reported is generally 50 km/h and there is no reported limit ending (this is a blank in the regulatory signage).

However, the driver must accelerate to reach motorway speed. On version 2_208 SafetyNex displays wrongly 50km/h. This issue is currently being processed and will be corrected in a later version.

. Sensitivity of the alarm to "stop" signs: the quality of the predictors of the App is near being improved and will make this high sensitivity disappear in a later version.

From users

. Wishes from many users about the interface have been fixed. The graphic interface was modified.

Release Note

Version v2_208 fix:

. reduction in untimely automatic starts

Version v2_208 brings:

. Better interface:

New pictograms during driving coach mode.

Pictogram (gear) indicating when system is recalculating its parameters and is not operating, eg: driving in roundabout (SafetyNex must recalculate the electronic horizon).



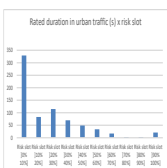
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. Presentation

- **SafetyNex** gives the risk of accident.
- It is not about a Big Data treatment on relocated servers, but about a risk of accident calculated in your smartphone, with an anticipation of 4 seconds which gives you the time to brake (the App warns you in case of high risk).
- The construction of this risk implements the notion of "near missed" which was invented by the researchers in accidentology in the years 2000. A near missed is explained by cause-effect relationships, and the regularity of this concept insures the perfect correlation of the risk calculated by SafetyNex with the accidentology.
- The works of Nexyad during these last fifteen years were all the object of scientific publications (see [REFERENCES](#) at the end of document).

. Interface overview for driver during driving and at the end of journey


- If the App was already started up on your smartphone, SafetyNex will start the driving coaching automatically when it detects that the vehicle has started.
- During driving, each second, risk is estimated. If risk is low, the graphic interface displays a green animated pictogram that show the App working. No vocal alert, the App is silent (advocating the rules of road safety).
- If risk rises but remains moderated (user-adjustable cursor depending on the level of interaction wished), pictogram becomes orange and the App send a audio bip.
- If risk becomes high (threshold not adjustable by user), pictogram turns red and the App sends a contextual vocal alert.
- At the end of a journey, you can use « stop » button (2 seconds long press). Then you see if you won a cup (Gold, Silver, Bronze) and you have access to your statistics of risk and of use. If you wish SafetyNex to start automatically when you start a new trip, do not quick the App !
- NB : if you do not push the stop button at the end of a trip, SafetyNex will stop automatically after 15 min still.
- Your risk and usage profiles are saved in the cloud. For that it uses DATA or WiFi (if open). If you do not have access to Data or WiFi at the end of a trip, you will push risk usage in the cloud with the button SYNCHRONIZE when you have access to DATA or WiFi. This will be automated in a next version.
- The map used is HERE, the cloud used is AZURE of MICROSOFT Corporation.
- NB : an additional feature alerts you if your speed is over legal regulation (read on the map).



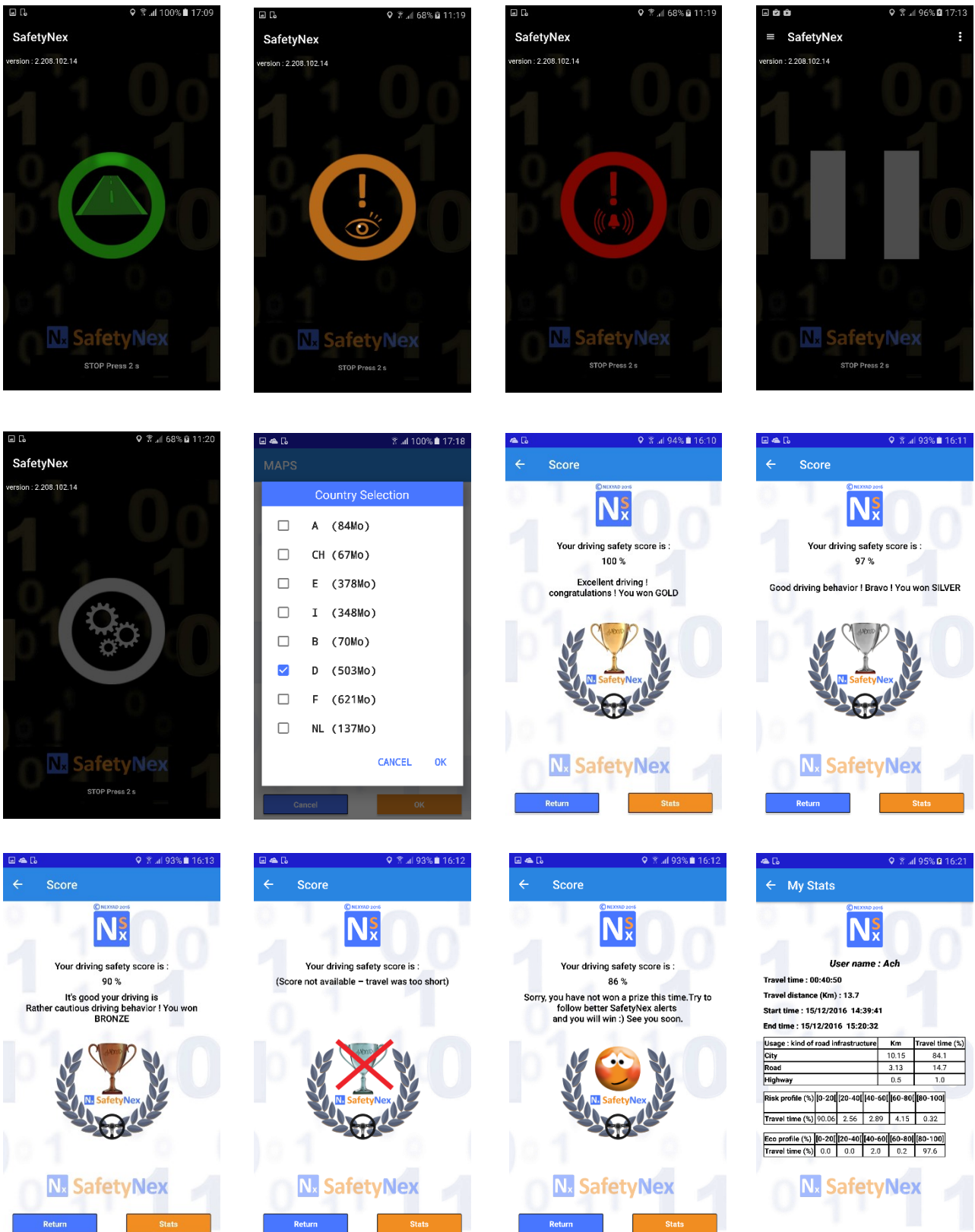


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. HMI of App (samples)

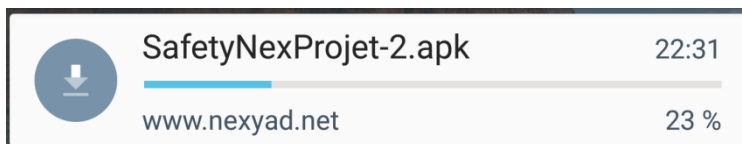
Vocal HMI (click if you have wifi access) : 

Graphic HMI :



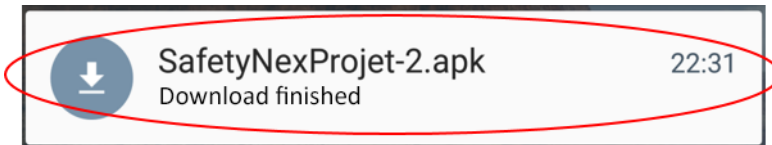
. Downloading of App

- Before starting installation, please make sure that WiFi is on and good quality, and that you have time (i.e. 15 minutes).
- The link towards the App is transmitted by email or by SMS.
- Click the link to download the Application.
- The download starts (the name of the file can vary according to the versions):

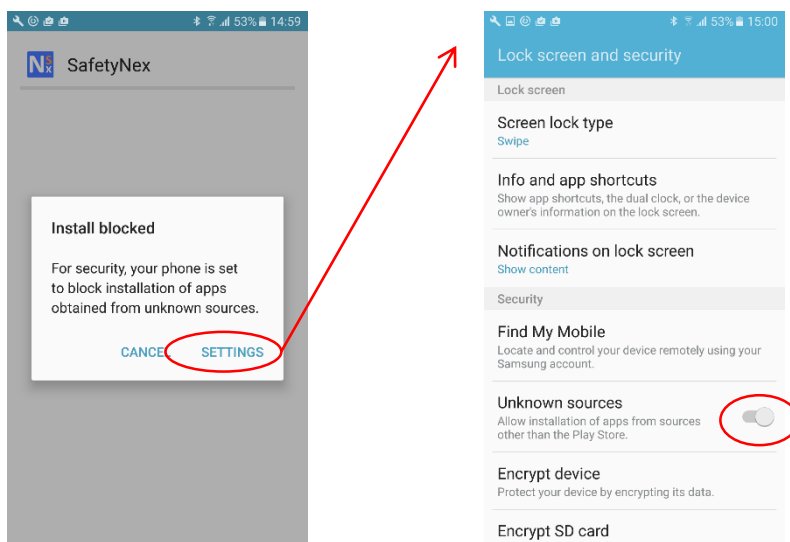


. Installation of the application

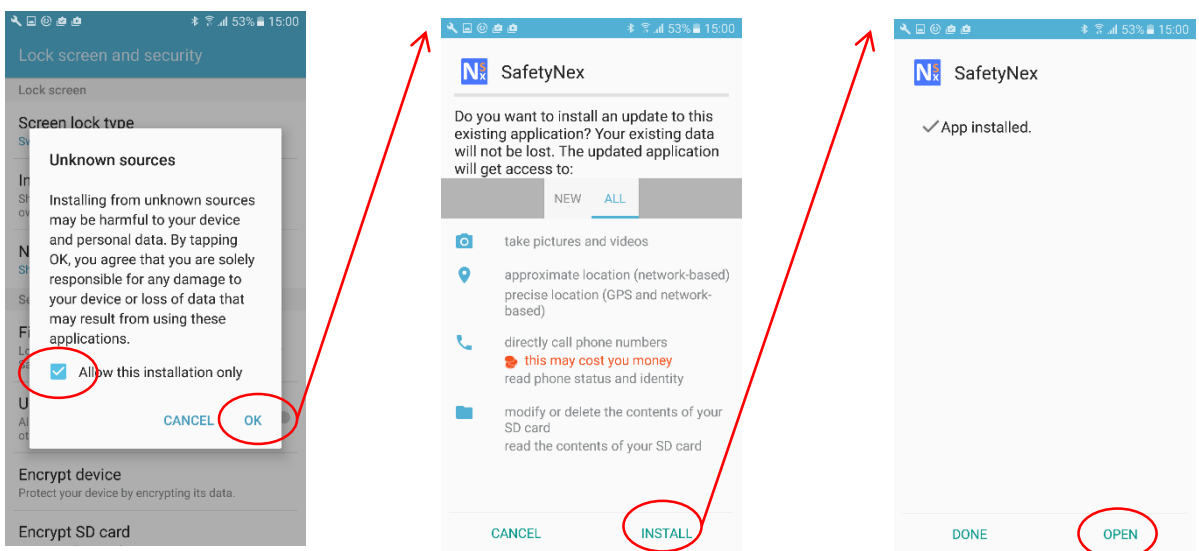
- Once the download has ended, click the notification " Download ended ":



- As the application does not result from an "App Store", the Android system prevents the direct installation, click on "PARAMETERS":



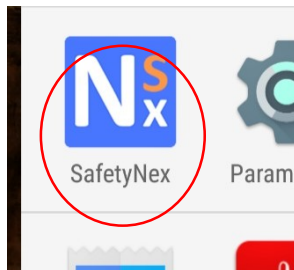
- Activate the "unknown Sources", then confirm " to Authorize only this installation ":



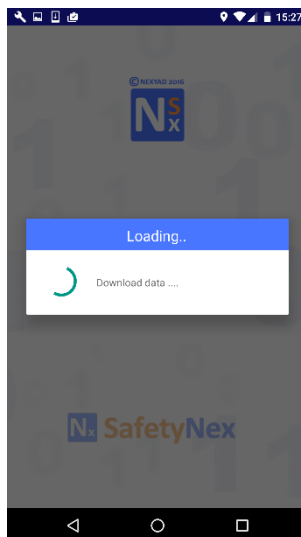
- Click on "INSTALL", then "OPEN".

. Installation of the application

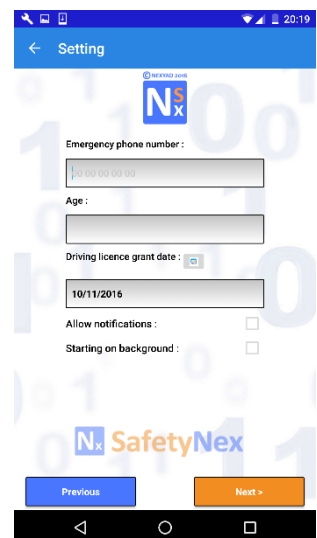
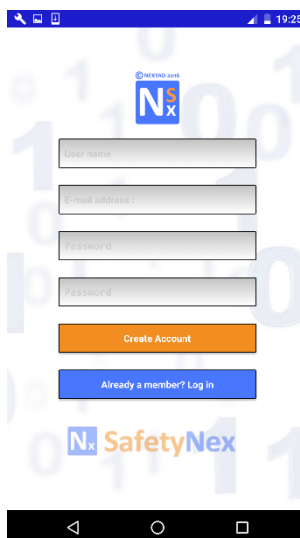
- Start the application by clicking the logo **SafetyNex** :



- The application controls the presence of the cartographic data on the smartphone, WiFi is needed for this stage:



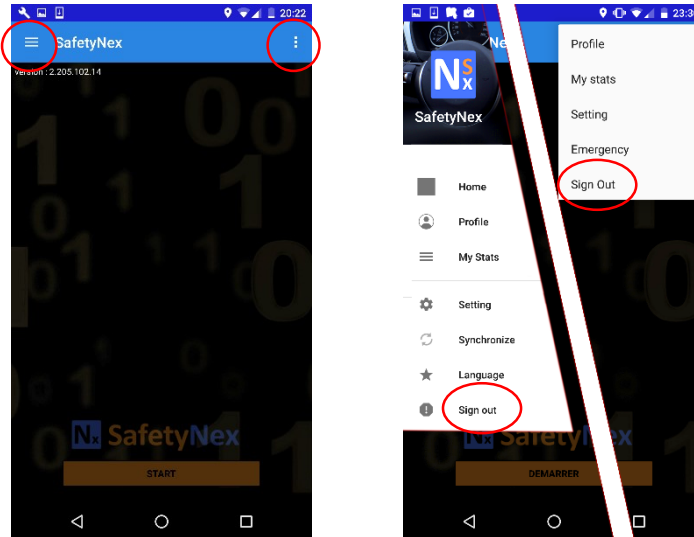
- If your license is not already activated by Nexyad, you can create your account:



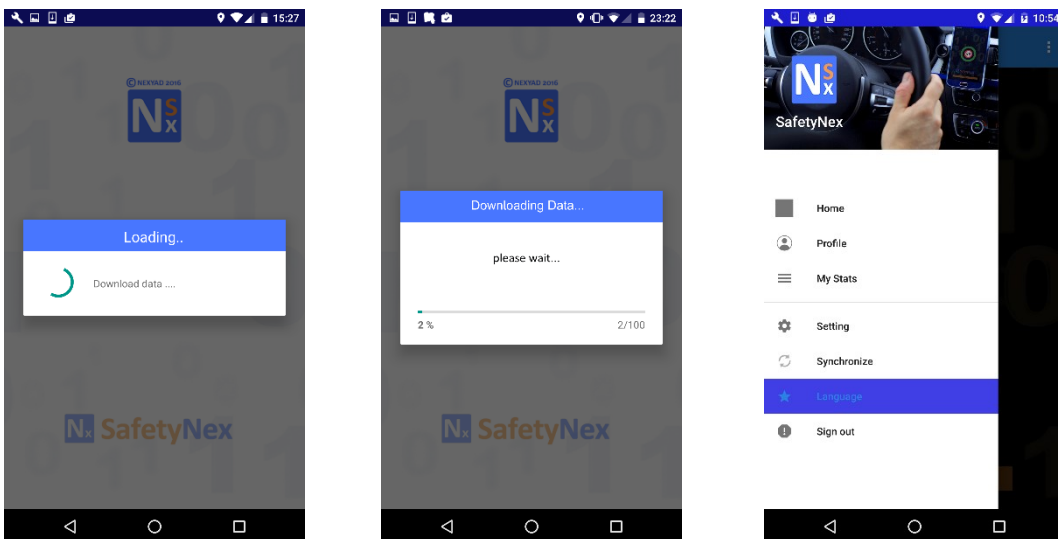
- You can fill all the screens by "Parameters" ...

. Installation of the application

- After the creation of your account, go to the main Menu (see page 9) to disconnect. The disconnection is necessary for the activation:



- The license application for your smartphone was sent on the servers of Nexyad (it can take 24 hours before the activation for the time being: evaluation). A SMS or an email will inform you when your account is active.
- You can now connect and receive data of HERE Maps. The WiFi is needed for this stage to guarantee the download:



- Once you installed the **SafetyNex** App, you must go directly to the main menu in order to select LANGUAGE

(do not use this V208 release without choosing your language because it is the first release that allows to select a language. Your language parameters were not stored by previous versions)

- Then the **SafetyNex** App automatically quits (after a few seconds).
- When you START again, language is set up the right way.

. Installation of the smartphone

- It is important to install the telephone properly in the car with a fixation (see image below).
- The telephone has to stand fixed Strongly in the vehicle, that is by using a stiff binding between the telephone and the vehicle.
- The flexible bindings or “smartphone in the pocket must be banned.
- Alerts are diffused through the loudspeaker of the telephone, it is necessary to verify that it is not in mute mode and that the volume is adjusted loud.
- During your journey, you will get short and discrete information on the display with a black background, in order to not distract you during your driving.



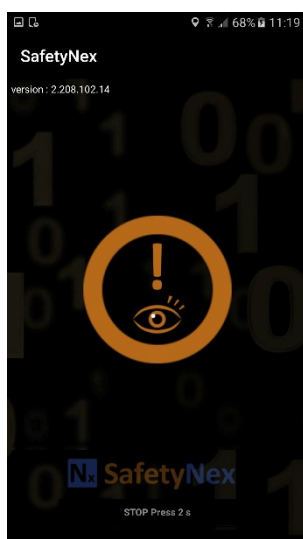
The telephone has to stand fixed Strongly in the vehicle

. Road Safety Alerts (driving Coaching mode)

- Launch the App **SafetyNex** with the start button (1):



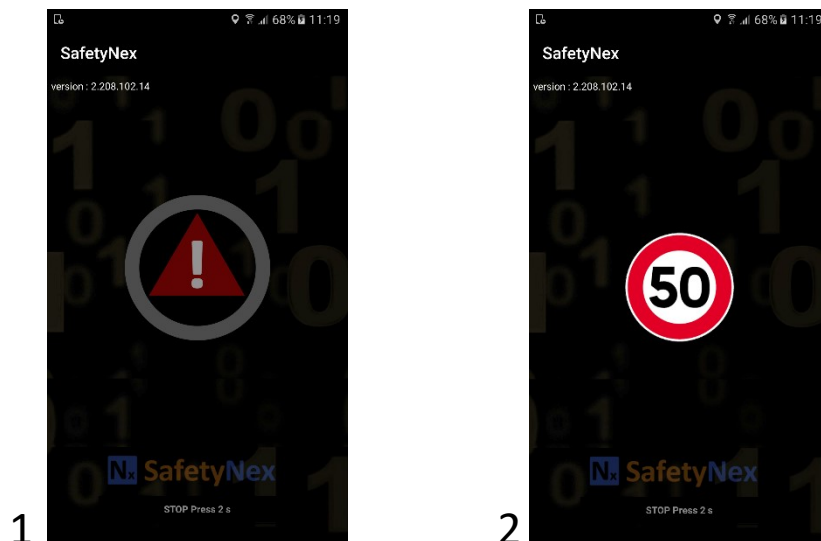
- Note: if the vehicle moves **SafetyNex** starts automatically.
- Stop **SafetyNex** by pressing during 2 seconds on the stop button (2).
- If the vehicle stays in motionless position during 15 minutes, a window suggests stopping the App **SafetyNex**.



- If the application identifies a potential danger, it warns the driver with a beep and an orange pictogram in case of moderate risk. In case of high risk, **SafetyNex** talks to the driver (text to speech) and pastes a red pictogram.

. Information in driving

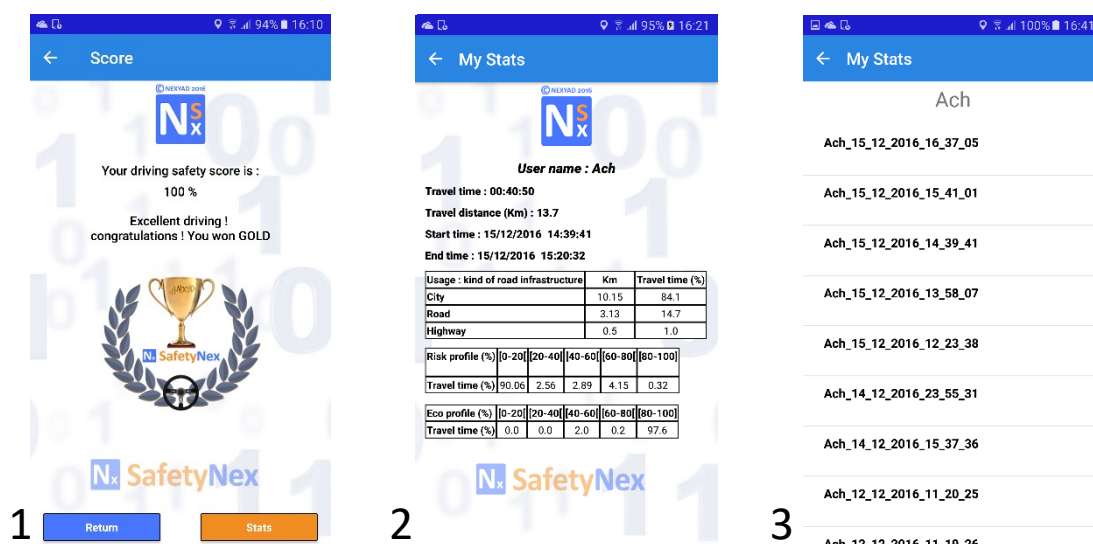
- Other pictures may appear on the screen:



- (1) Alert "loss of GPS" (tunnel for example)
- (2) Alert "overtaking of authorized legal speed" (never goes out of the smartphone and not recorded for driver privacy)

. End of journey

- At the end of a journey, **SafetyNex** indicates you if you won a cup for good behaviour (1): gold, silver bronze.



- See your statistics (2) or former statistics by selecting " My Stats " (3) in the main menu or the secondary menu (see page 9).

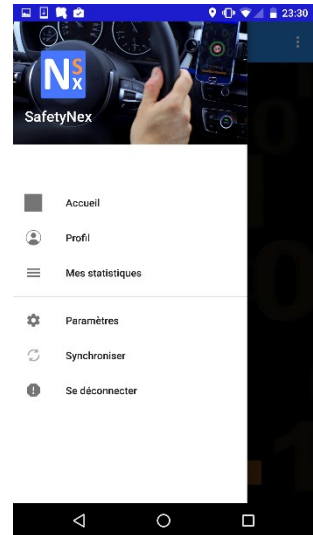
NB : Avoid leaving the App without pressing STOP (if you want to see your stats right now).

. Contents of the menus

• Main menu:



- Welcome : main page to start a journey.
- Profile: visualize the parameters of the application (possibility of crossing in mode edition of the profile security).
- My stats: select a journey to watch stats.
- Parameters: edit all the parameters (profiles security and eco-driving, and parameters of the app).
- Synchronize: raise all the journeys which would not have been able to be transmitted to the server for lack of internet connection at the end of the journeys.
- Logout

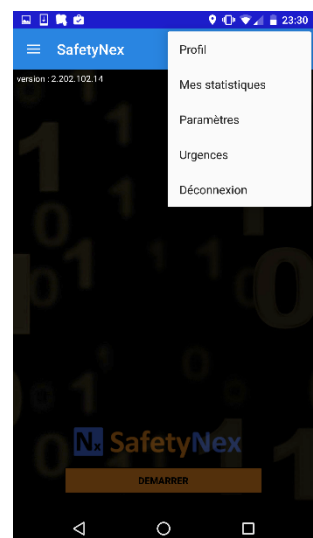


• Secondary menu:

SafetyNex



- Profile: visualize the parameters of the application (possibility of crossing in mode edition of the profile security).
- My stats: select a journey to watch stats.
- Parameters: edit all the parameters (profiles security and eco-driving, and parameters of the app).
- Emergency call: test the function of call in case of shock, in particular the configuration of the number to be called.
- Logout



. References

[Deployment of SafetyNex by Insurance Companies: return on investment \(ROI\)](#)

[SafetyNex App Revolutionizes Road Safety](#)

[SafetyNex reduces road accidents rate by 20%](#)

[Deep changes in the business of Car Insurance: SafetyNex can help](#)

[Car telematics and respect for privacy using safetyNex](#)

[THE ultimate solution for real time onboard driving risk assessment: SafetyNex](#)

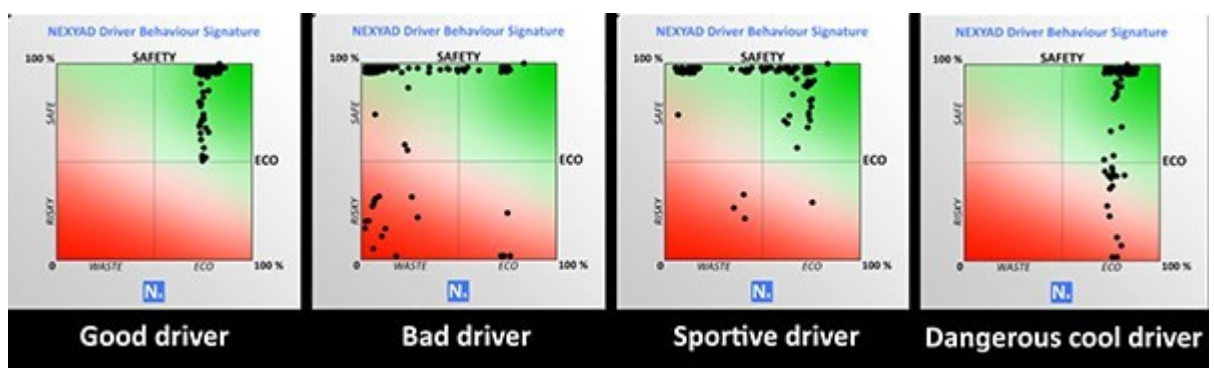
NB : The most recent papers cite mainly the previous papers (which themselves cite the bibliographic in road safety).

For scientists, link to a PowerPoint animation to download (principles of accident, quasi-accident, etc.):

<http://nexyad.net/Automotive-Transportation/wp-content/uploads/2016/10/safetyNex-Animation.ppsx>

Runs replayed in RT-MAPS (realtime asynchronous framework on PC) with real time plots:

<https://www.youtube.com/watch?v=pylg4OqOGQI>



. Exemple of recorded data : analysis of ONE trip « *User 1* »

For a given trip and « user 1 » (same may be done for a given person among several trips, statisticians may cross data ...). Here are graphic renders that are not provided by NEXYAD. Those graphic renders are made in Excel using recorded data on a trip. It is just a quick sample of what you can do.

USAGE recorded data

Distance = 19 km

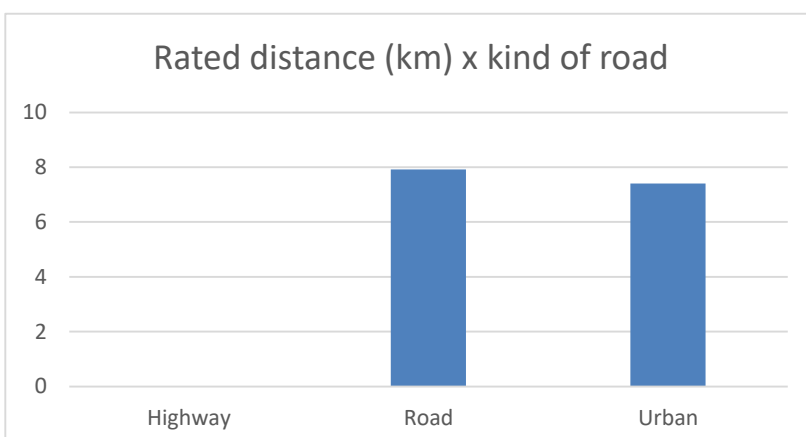
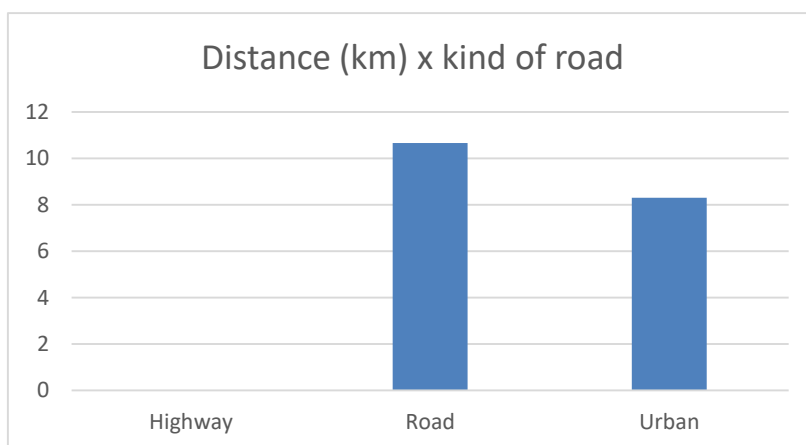
Rated distance = 15 km (there are some cases where it is not possible to estimate risk : no gps, no information on the electronic map, no electronic horizon, etc ...)

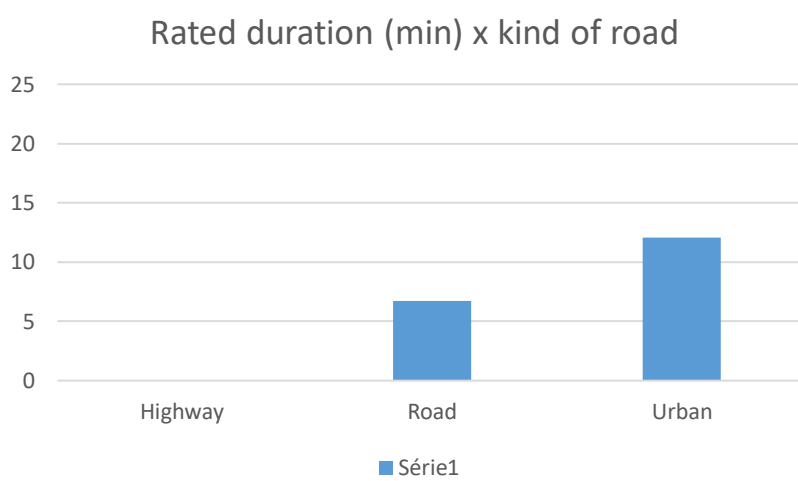
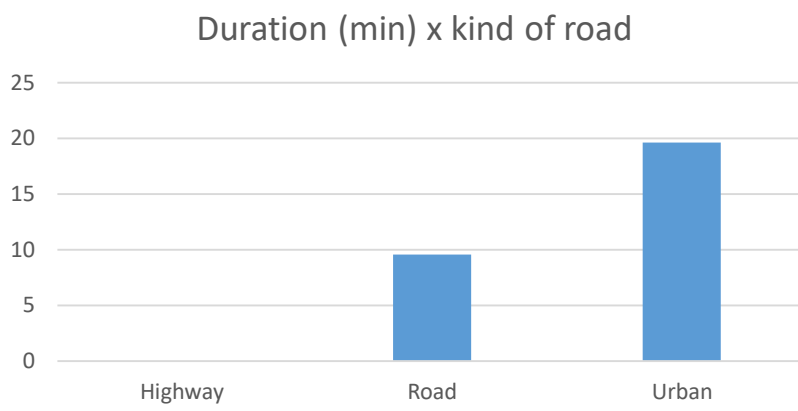
Total duration = 29 min

Rated duration = 18 min

Start time 29/11/2016 08:38

End time 29/11/2016 09:07



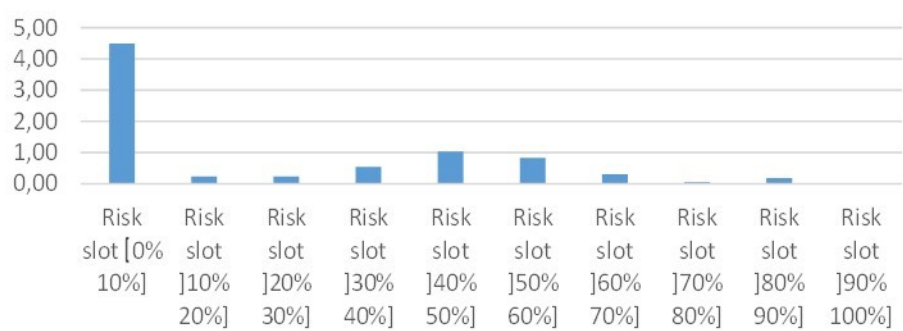


More data to follow next page

RISK

Score of Safe Driving on roads : 88%
Score of Safe Driving in urban traffic : 97%
Global Score of Safe Driving : 94%

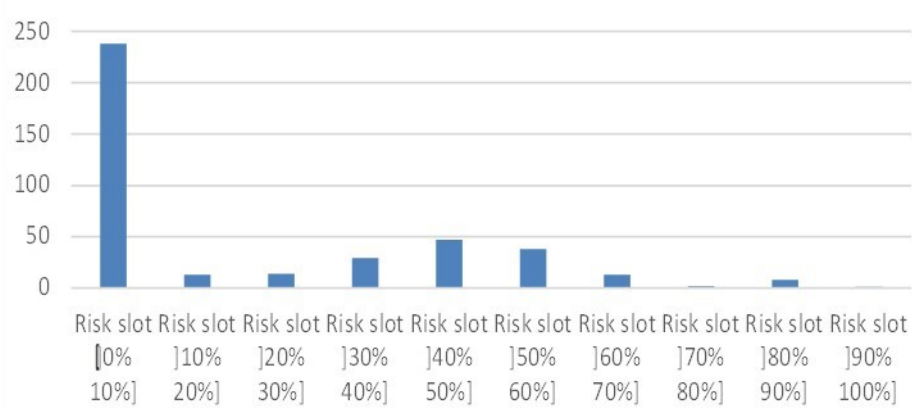
Rated distance on roads (km) x risk slot



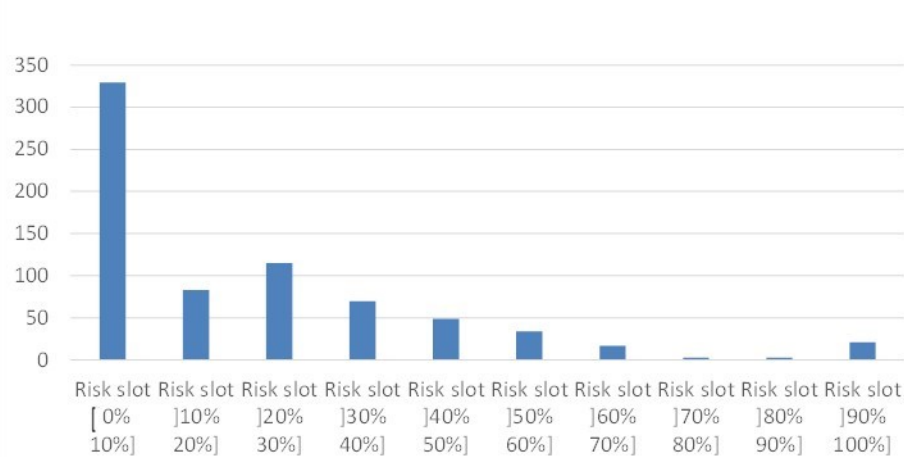
Rated distance in urban traffic (km) x risk slot



Rated duration on road (s) x risk slot



Rated duration in urban traffic (s) x risk slot



. Exemple of recorded data : analysis of ONE trip « *User 2* »

USAGE recorded data

Distance = 36km

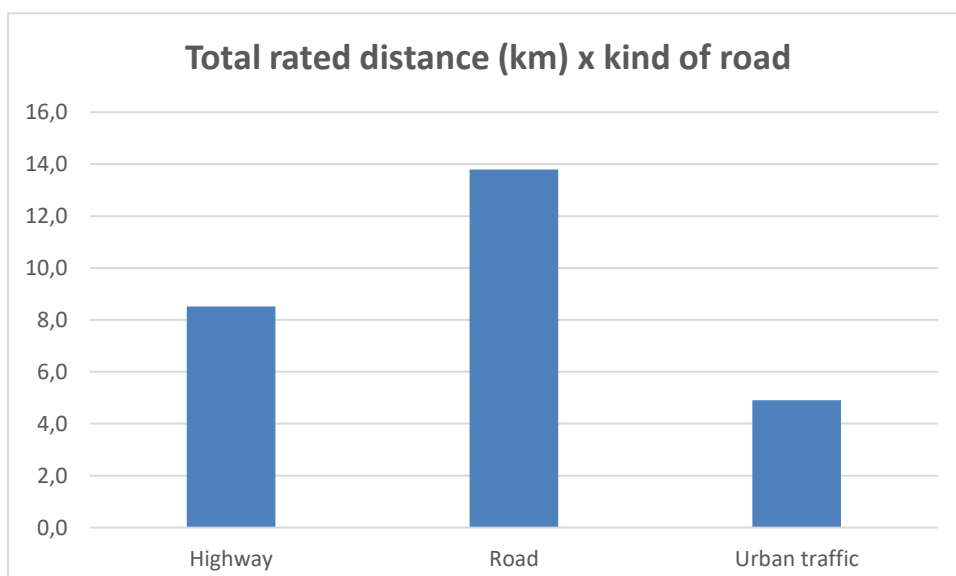
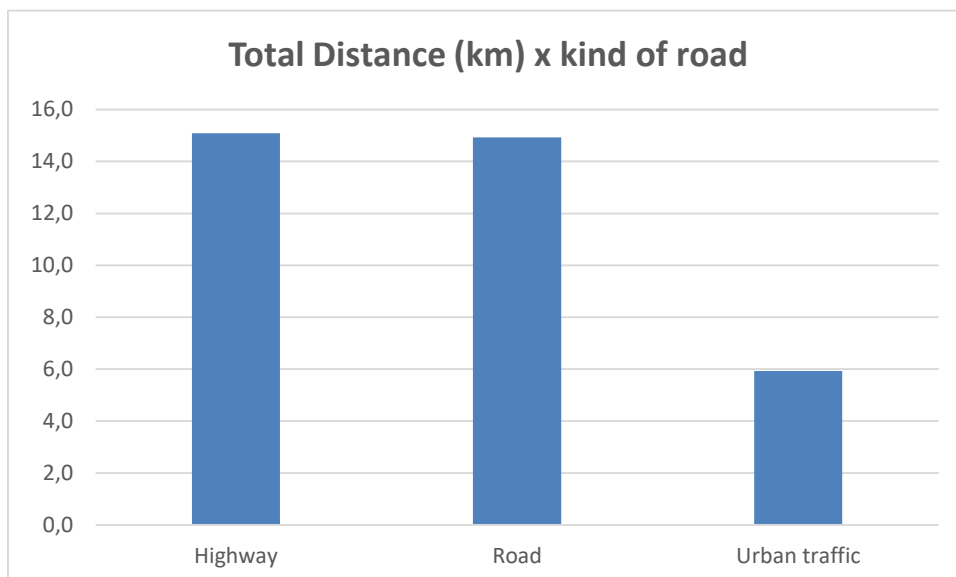
Rated distance = 27 km (there are some cases where it is not possible to estimate risk : no gps, no information on the electronic map, no electronic horizon, etc ...)

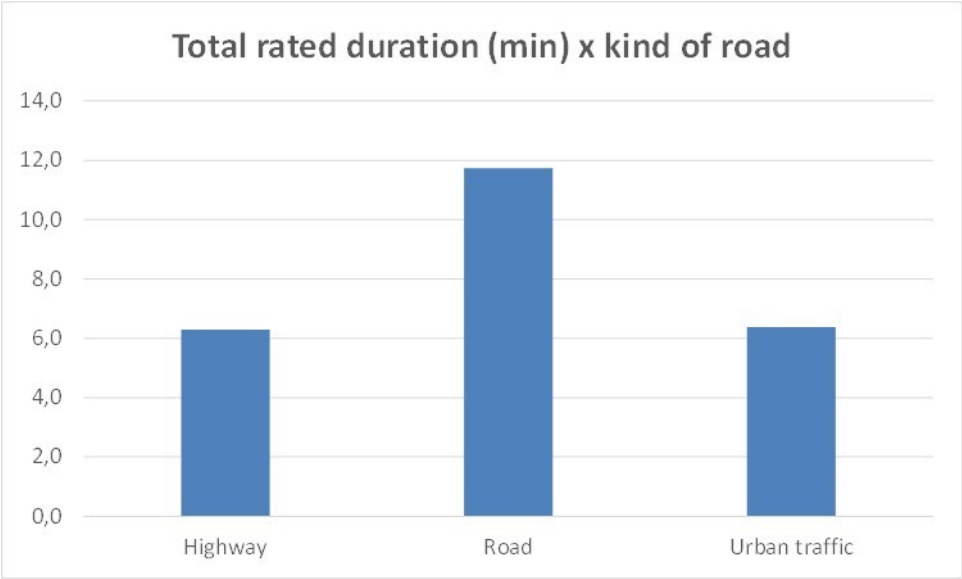
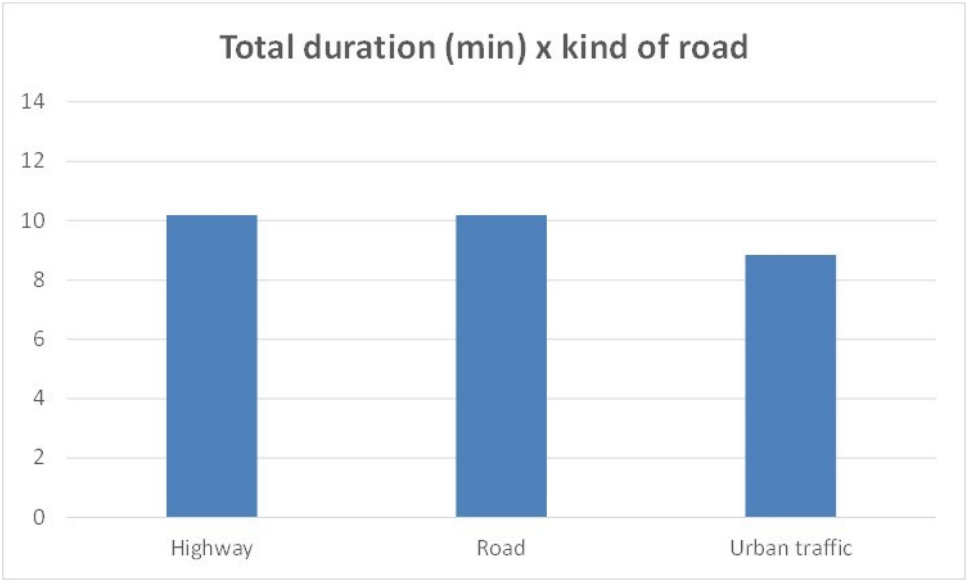
Total duration = 29 min

Rated duration = 24 min

Start time 16/12/2016 20:04:20

End time 16/12/2016 20:44:48





More data to follow next page

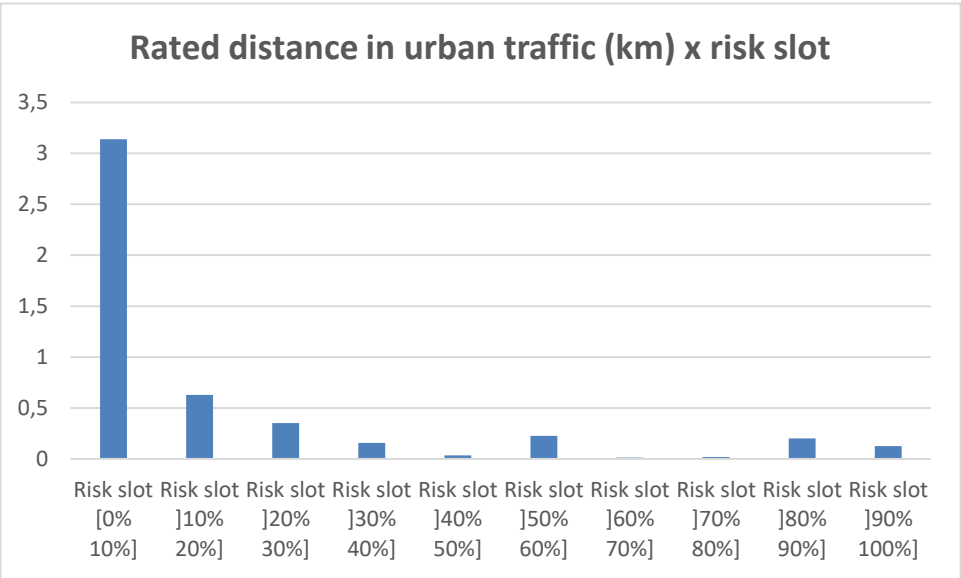
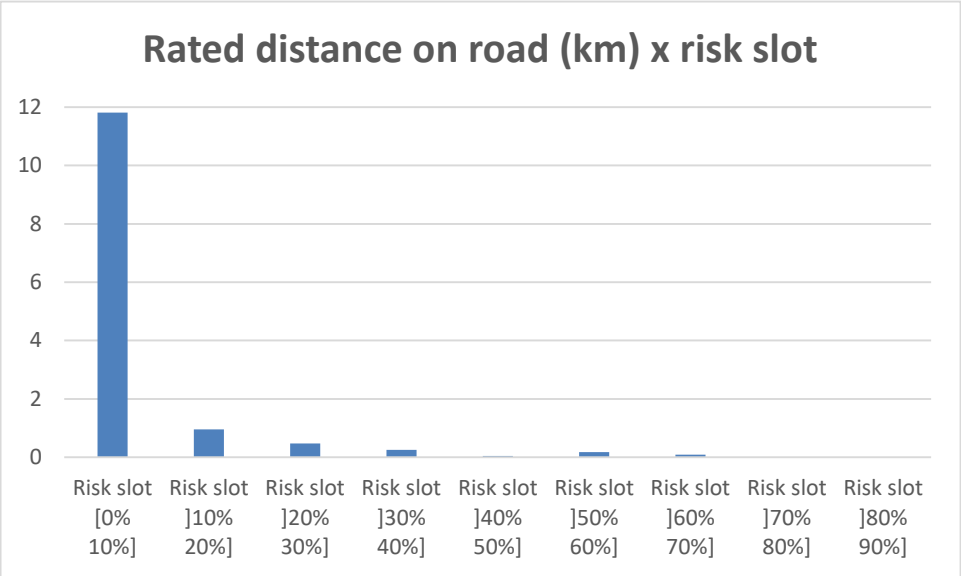
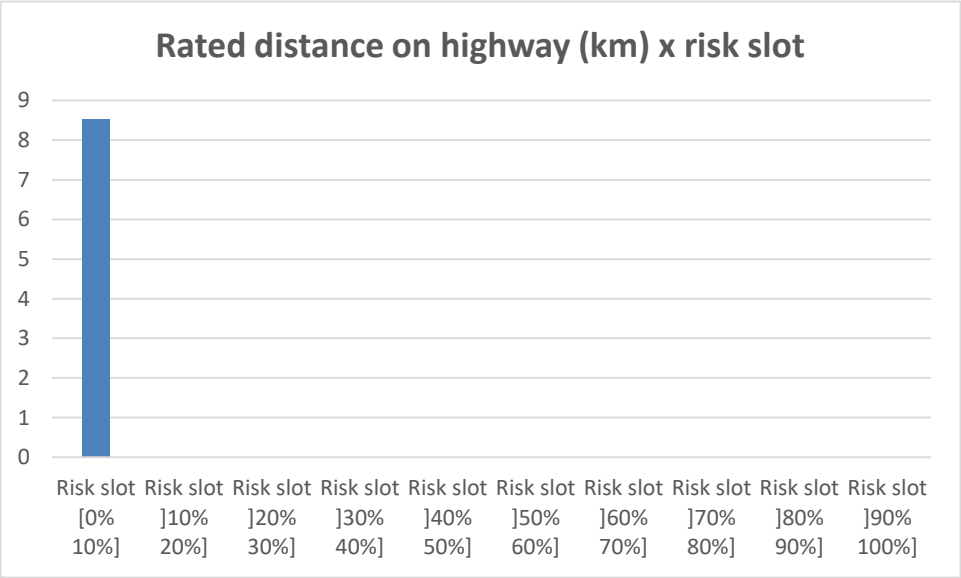
RISK

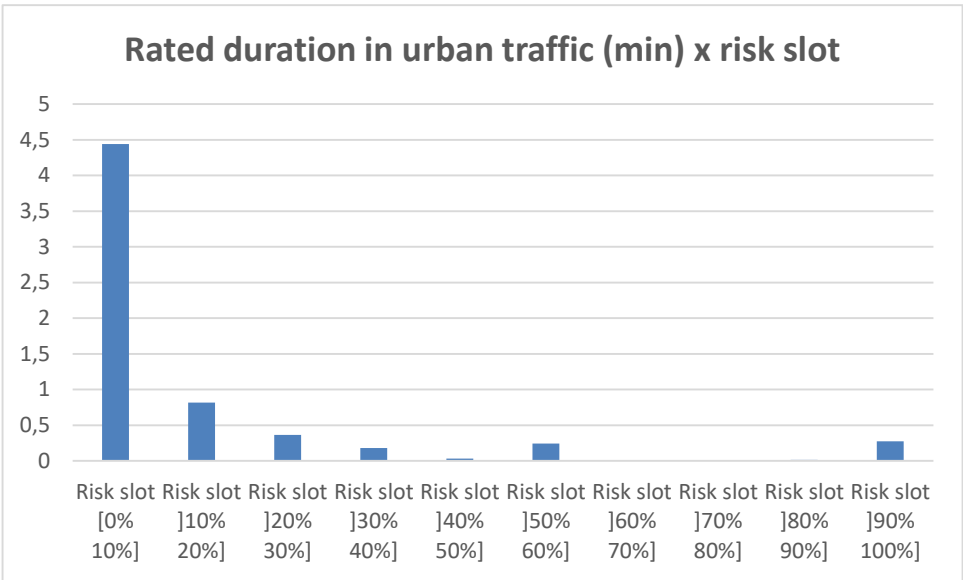
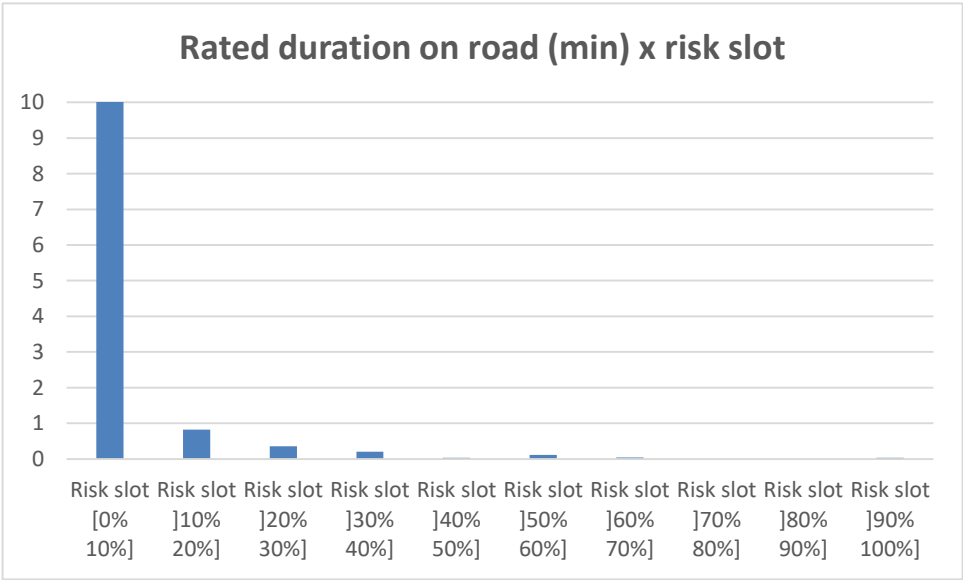
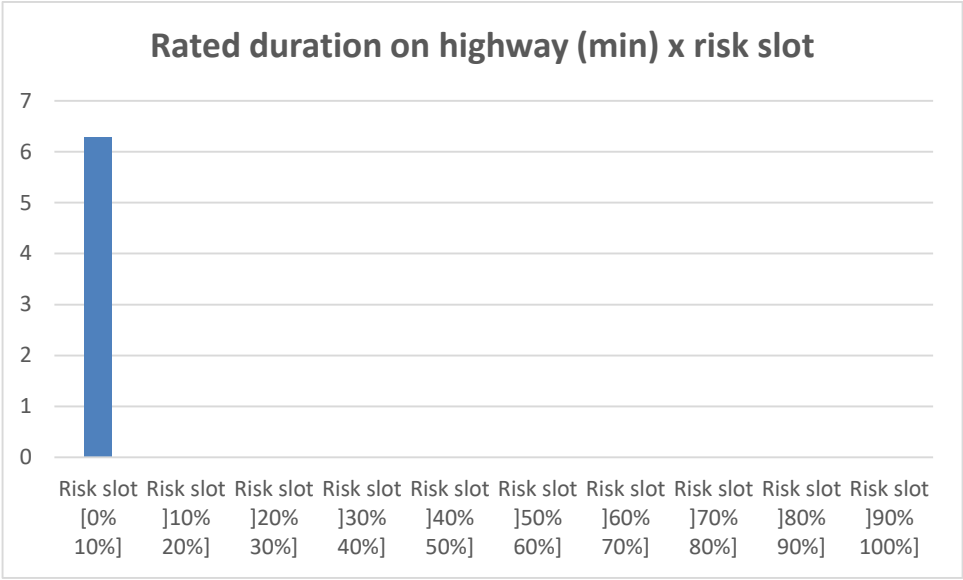
Score of Safe Driving on highways: 100%

Score of Safe Driving on roads: 99%

Score of Safe driving in urban traffic : 78%

Global score of Safe driving : 93%



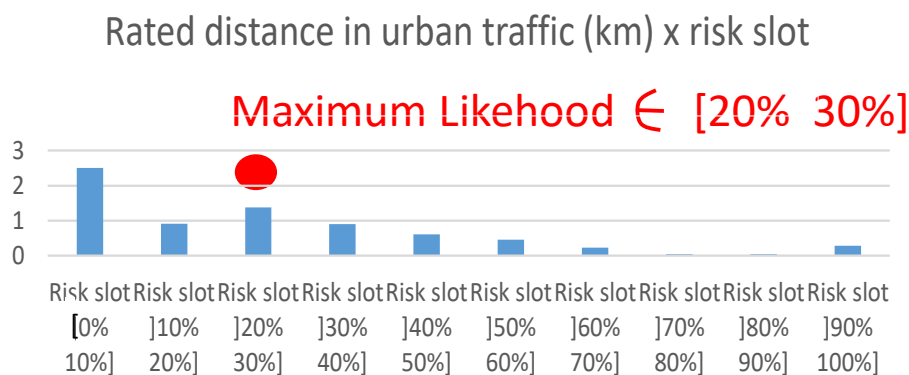


USE CASE : Quick visual analysis

One can see that USER 2 is much safer than USER 1, in terms of global distribution of risk. But USER 2 got a lower score of Safe driving in urban traffic.

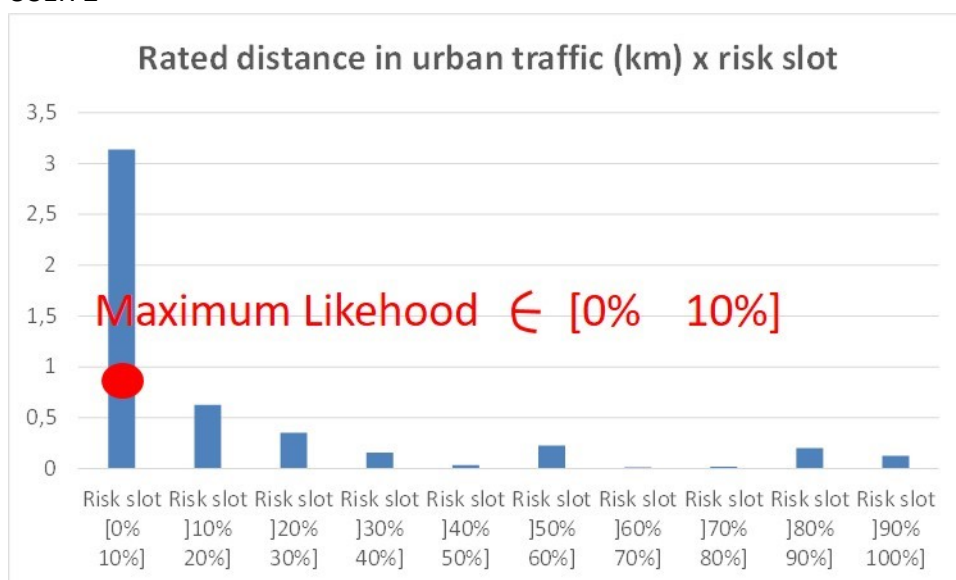
Let us compare the two distributions :

USER 1



NB : first slot is taken out of the analysis

USER 2



One can see that, however safe User 2 behaviour is, this driver got some high risk alerts. It means that this driver is globally much quiet and serious, but sometimes doesn't understand danger.

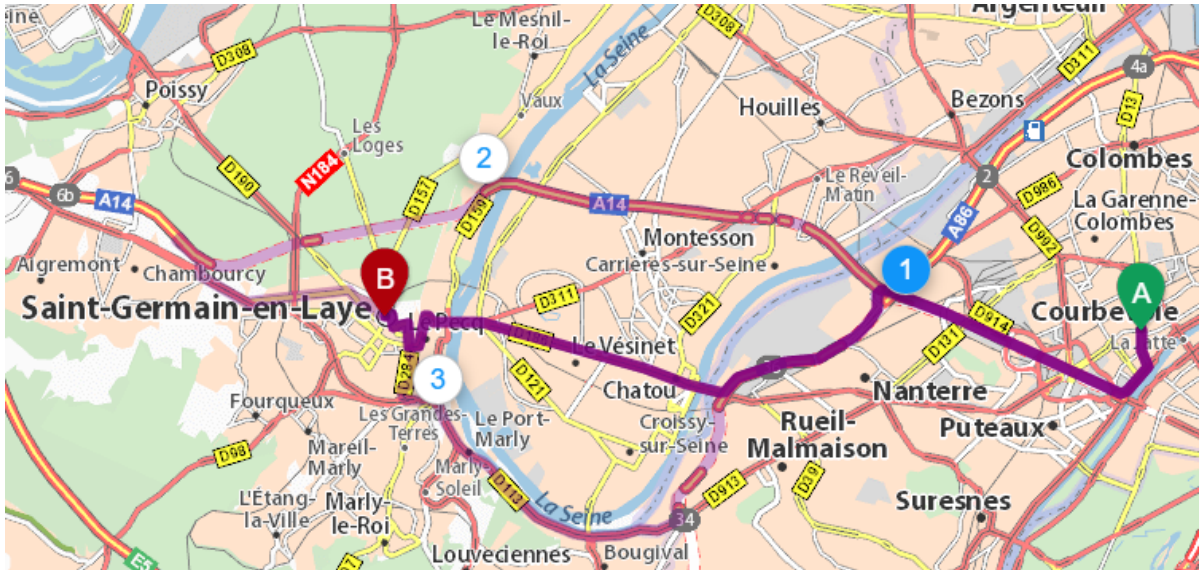
This profile should be considered in a different way from USER 1, and of course from a driver than would have a risk histogram with only high risk slots.

Shape of histograms opens the doors to many analysis and strategies for car insurance and fleet management (prevention, training, incentive, etc ...).

NB : car insurers ALREADY estimate risk for every driver. SafetyNex driving risk histograms are ADDITIONAL data. Crossing and correlating those new data with all regular actuary data should give new leads of strategies.

Let's consider that USER 2 is a suburban driver that goes to his/her office everyday and has 3 possible pathways (as it is the case for almost every suburban driver) :

- . The « old » pathway : only urban traffic
- . The « new » pathway : only peri urban highway
- . A mix : half urban, half highway



One can see that User 2 is completely Safe on highways.

Then in a risk point of view, the choice of pathway is very important. And from the knowledge of address of User 2 and address of office, it is NOT possible to estimate the real risk (only an average risk as a projection of other drivers accident in the area among the last X years).

SafetyNex risk profiles bring as much information as your imagination will allow.

Have safe journeys with **SafetyNex** !