



IT2Rail



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No: 636078



Information technologies for Shift to rail

D5.2 – Travel Companion Specification

Annex 3: Audit & Best practices



- 1. Journey needs compared to the screens in HaCon applications p. 4
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1 - Journey needs compared to the screens in Hacon applications



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1 - Journey needs compared to the screens in Hacon applications

Hacon application base :



- **Dynamo demo version 28 :**

Planning tool running on a test environment



- **HaCon Standard Navigator :**

HaCon has developed several standard functionalities which independently can be linked to an individual application. For analysis at hand several of these individual applications has been taken into consideration.



- **BVG FahrInfo Plus for Berlin :**

BVG is the network-wide timetable information and the mobile ticket sales of the Berlin Transport Authority (BVG) for public transport.



1 - Journey needs compared to the screens in HaCon applications

		BEFORE		DURING			
		Home	Right before departure	Departure Berlin tube	Berlin tube	Berlin airport	Berlin airport
Transport modes		<p>... use my profile (set of preferences)</p> <p>Travel preferences registration exists but just one user profile registration is possible.</p>	<p>✗ set up the trip (a.g. choose meal, seat...)</p> <p>Since there are no tickets, there are no options for meals or seats.</p>	<p>... know if the itinerary is still valid (a.g. disruptions)</p> <p>There are warnings in the roadmap but no phone real-time notifications along the way.</p>	<p>... know if the itinerary is still valid (a.g. flight delay)</p> <p>There are warnings in the roadmap but no phone real-time notifications along the way.</p>	<p>... know if the itinerary is still valid (a.g. flight delay)</p> <p>There are warnings in the roadmap but no phone real-time notifications along the way.</p>	<p>... know if the itinerary is still valid (a.g. flight delay)</p> <p>There are warnings in the roadmap but no phone real-time notifications along the way.</p>
		<p>... find and choose the best entitlement to travel</p> <p>This functionality exists but neither takes into account all possible means of transportation (plane, car-sharing, bike-sharing...) nor price comparison.</p>	<p>✗ carry travel documents with me</p> <p>No travel documents can be accessed in the app.</p>	<p>✓ be guided to find the platform</p> <p>There is indoor routing with pictures.</p>	<p>✗ prepare the next steps of my journey (a.g. terminal and gate number)</p> <p>There is no saved roadmap accessible offline.</p>	<p>✓ be guided to find the airport</p> <p>The GPS guides well step-by-step.</p>	<p>✗ know the terminal and the gate number</p> <p>There are no tickets therefore no guidance to the gate number.</p>
User needs		<p>✓ see proposed transport solutions in an easy way</p>	<p>... know if the itinerary is still valid (a.g. disruptions)</p> <p>There are warnings in the roadmap but no phone real-time notifications along the way.</p>	<p>✗ have a reminder to get a physical ticket</p> <p>There is neither a warning in the roadmap nor a real-time notification to get a physical ticket.</p>	<p>✗ have a reminder to get off the tube (a.g. 5 min before arrival)</p> <p>There is no offline step-by-step notification.</p>	<p>✗ be guided to drop my luggage</p> <p>There are no tickets therefore no guidance to baggage drop off.</p>	
		<p>✗ be in possession of a valid entitlement</p> <p>The app neither allows to buy nor keep tickets.</p>	<p>✓ be guided to find the tube</p> <p>There is outdoor and indoor routing.</p>	<p>✗ check-in</p> <p>There is no check-in as there is no ticket.</p>	<p>✗ be informed to check-out if payment scheme requires me to do so</p> <p>There are no tickets therefore no payment scheme.</p>	<p>✗ be guided to find the security checkpoint</p> <p>There is no indoor guidance.</p>	
		<p>✗ share documents with someone (a.g. send entitlement)</p> <p>The app neither allows to buy nor share travel documents.</p>				<p>✗ board</p> <p>There are no tickets therefore no boarding.</p>	
		<p>✓ share information with someone on chosen channel (a.g. disruption)</p> <p>The app allows sharing a route via email, text and saving in the calendar.</p>					
		<p>... share on social networks</p> <p>The app allow sharing on social networks but it should a cross-function.</p>					



Screen existing in HaCon applications



No corresponding functionality



Screen partially existing in HaCon applications

1 - Journey needs compared to the screens in HaCon applications

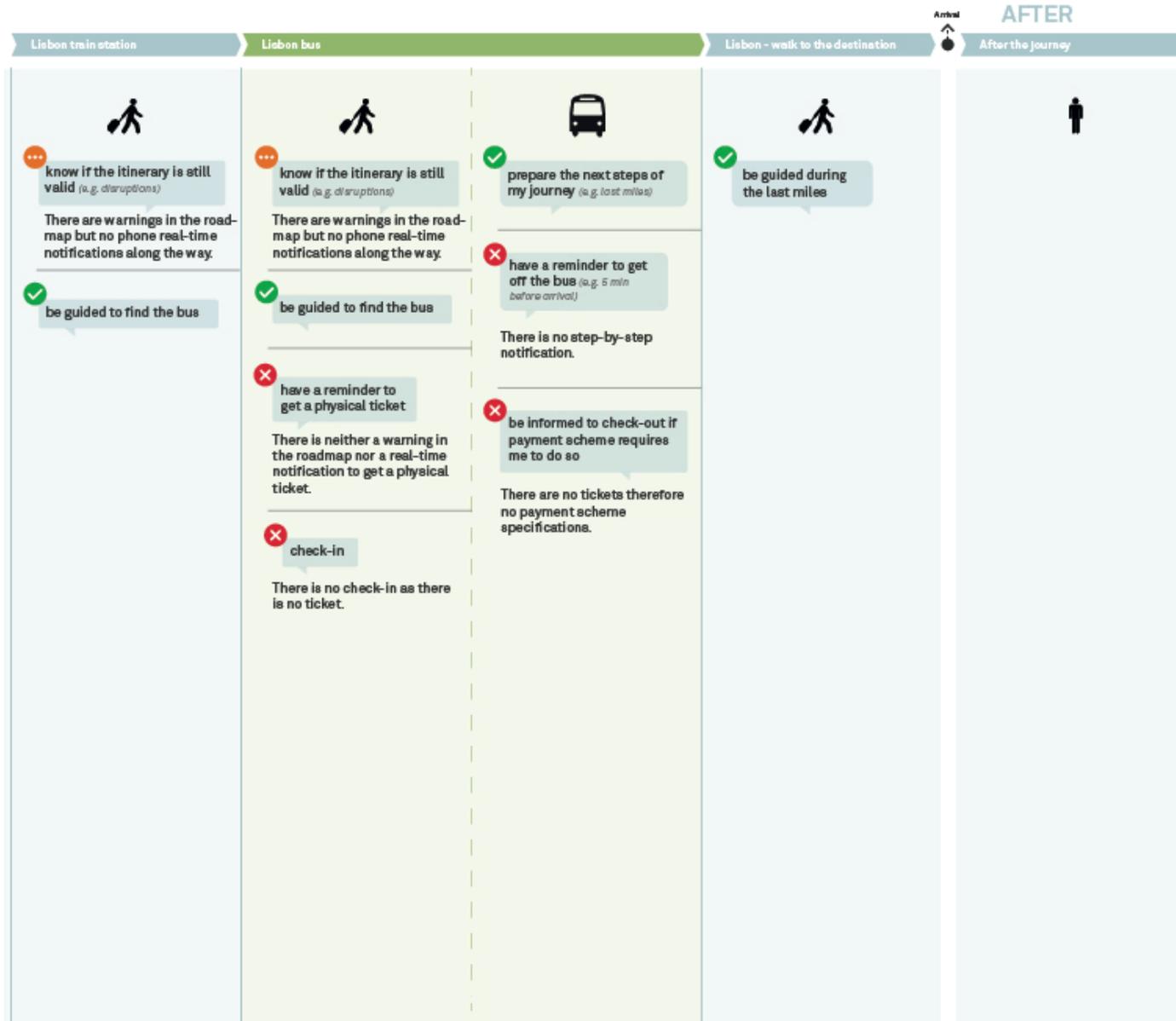
Plane	Madrid airport	Madrid tube	Madrid tube	Madrid tube	Madrid train station	Madrid train station	Train
 <p>... prepare the next steps of my journey (e.g. interchange delays)</p> <p>There are warnings in the roadmap but no phone real-time notifications along the way.</p>	 <p>... know if the itinerary is still valid (e.g. disruptions)</p> <p>There are warnings in the roadmap but no phone real-time notifications along the way.</p> <p>✗ be guided to get my luggage</p> <p>There are no tickets therefore no guidance to baggage pick up.</p> <p>✓ be guided to find the tube</p> <p>The outdoor GPS guides well step-by-step.</p>	 <p>... know if the itinerary is still valid (e.g. disruptions)</p> <p>There are warnings in the roadmap but no phone real-time notifications along the way.</p> <p>✓ be guided to find the platform</p> <p>There is indoor guidance with pictures.</p> <p>✗ have a reminder to get a physical ticket</p> <p>There is neither a warning in the roadmap nor a real-time notification to get a physical ticket.</p> <p>✗ check-in</p> <p>There is no check-in as there is no ticket.</p>	 <p>... know if the itinerary is still valid (e.g. disruptions)</p> <p>There are warnings in the roadmap but no phone real-time notifications along the way.</p> <p>✗ prepare the next steps of my journey (e.g. train platform)</p> <p>There is no saved roadmap accessible offline and no ticket booking so no guidance to the train platform.</p> <p>✗ have a reminder to get off the train (e.g. 5 min before arrival)</p> <p>There is no offline step-by-step notification.</p>	 <p>... know if the itinerary is still valid (e.g. train delay)</p> <p>There are warnings in the roadmap but no phone real-time notifications along the way.</p> <p>✓ be guided to find the train station</p> <p>The outdoor GPS guides well step-by-step.</p>	 <p>... know if the itinerary is still valid (e.g. train delay)</p> <p>There are warnings in the roadmap but no phone real-time notifications along the way.</p> <p>✗ know the train platform</p> <p>There is no information as there is no ticket.</p> <p>✗ be guided to find the train</p> <p>There is no information as there is no ticket.</p> <p>✗ board</p> <p>There are no tickets therefore no boarding.</p>	 <p>... know if the itinerary is still valid (e.g. delays)</p> <p>There are warnings in the roadmap but no phone real-time notifications along the way.</p> <p>✗ prepare the next steps of my journey (e.g. find the bus)</p> <p>There is no saved roadmap accessible offline and no ticket booking so no guidance to the bus.</p> <p>✗ have a reminder to get off the train (e.g. 5 min before arrival)</p> <p>There is no offline step-by-step notification.</p> <p>✗ be informed to check-out if payment scheme requires me to do so</p> <p>There are no tickets therefore no payment scheme specifications.</p>	

✓ Screen existing in HaCon applications

✗ No corresponding functionality

... Screen partially existing in HaCon applications

1 - Journey needs compared to the screens in HaCon applications



✓ Screen existing in HaCon applications

✗ No corresponding functionality

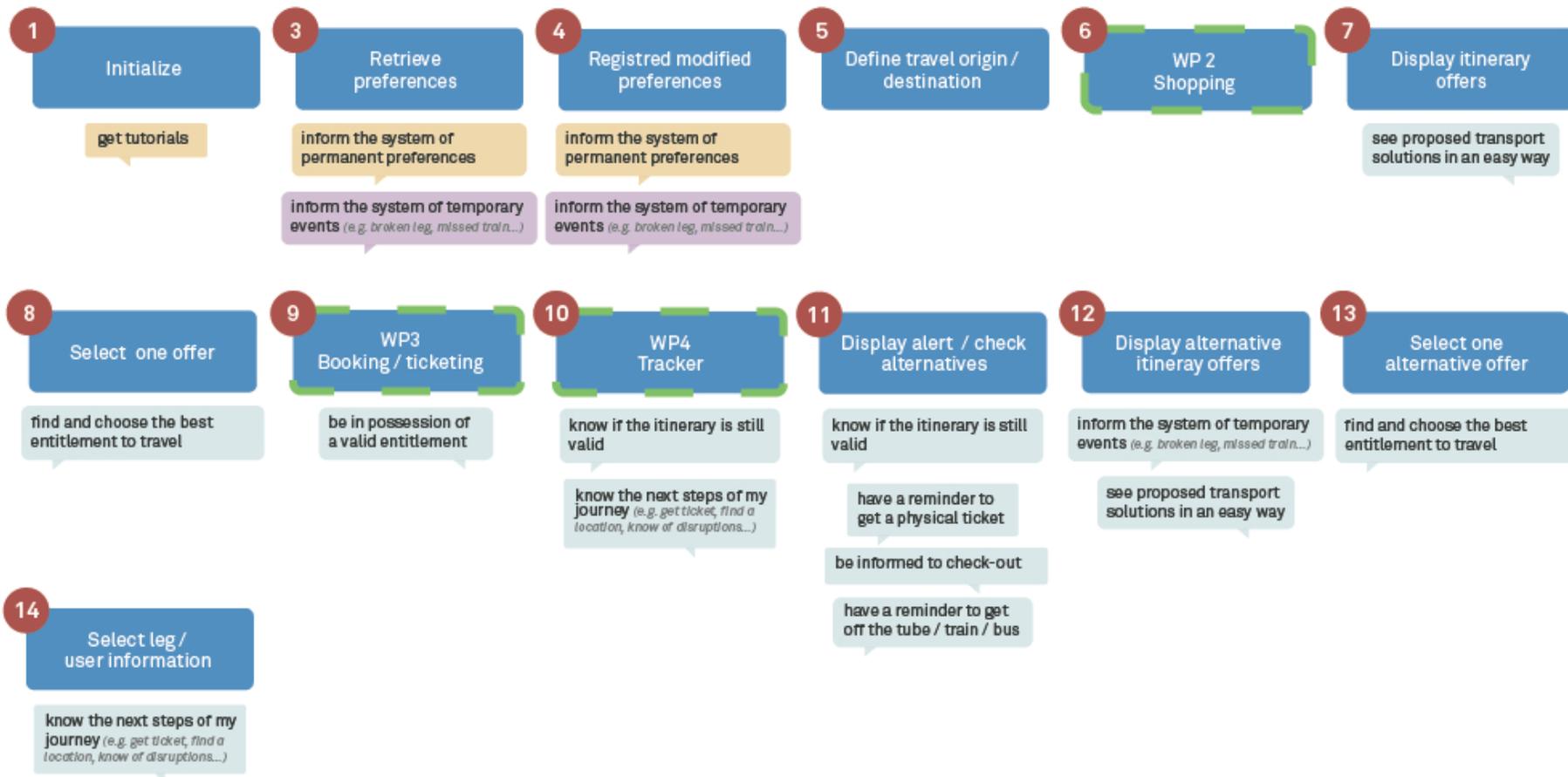
⋯ Screen partially existing in HaCon applications

2 - Journey needs in association with functions for the Travel Companion



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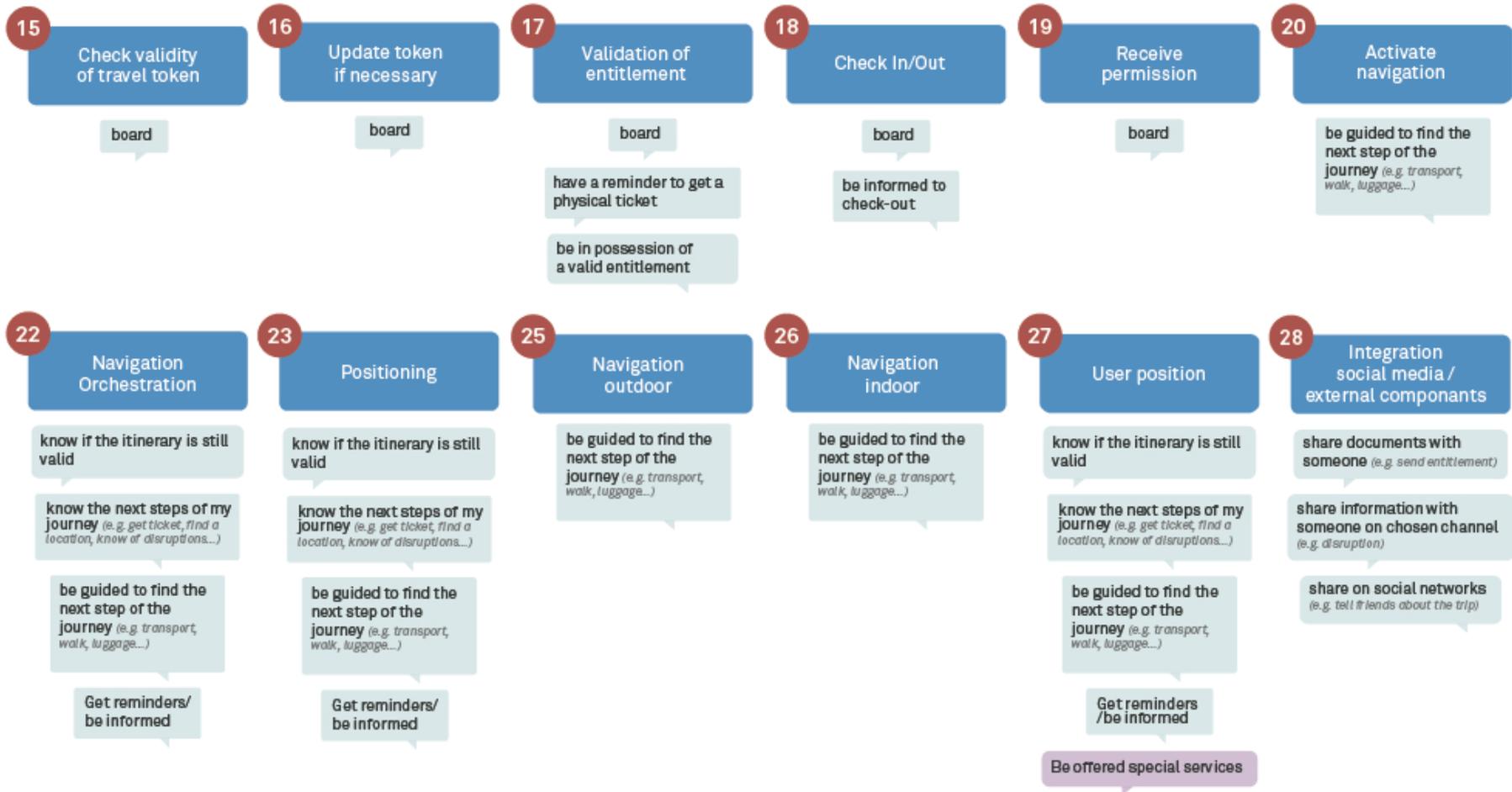
2 - Journey needs in association with functions for the Travel Companion



First use

Mobility impairment

2 - Journey needs in association with functions for the Travel Companion



2 - Journey needs in association with functions for the Travel Companion



Needs with no function associated

set up the trip
(e.g. choose meal, seat...)

carry travel documents
with me

First use

Mobility impairment

3 - Functional perimeter of the Travel Companion compared to the screens in HaCon applications



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3 - Functional perimeter of the Travel Companion compared to the screens in HaCon applications

<p>1 Initialize ⋮</p> <p>▶ After initialization, the tutorial (already existing) should run at the first login and then be accessible inside the burger menu but not in the options button in the header.</p> 	<p>2 IDLE</p> <p>No GUI screen</p>	<p>3 Retrieve preferences ✔</p> <p>The user is able to set up travel preferences. ▶ Increase visual affordance</p> 	<p>4 Registered modified preferences ✔</p> <p>The word «profile» isn't appropriated for registered modified travel preferences and the saving action isn't clear ▶ Change the word «profile» and reinforce the action awaited for saving</p> 	<p>5 Define travel origin / destination ✔</p> <p>Auto completion and search history.</p> 	<p>6 WP 2 shopping ✔</p> <p>The shopping process with time comparison in a vertical timetable is very visual and easy to use. ▶ Add comparison factors: • Price • Time • Walking time • Number of connexions...</p> 	<p>7 Display itinerary offers ✔</p> <p>The possible routes are displayed in a step-by-step horizontal view or in a calendar view. ▶ The itineraries should also be shown on a map.</p> 
<p>8 Select one offer ✔</p> <p>One tap to select.</p> 	<p>9 WP3 booking / ticketing ✔</p> <p>Possibility to purchase ticket and use it on smartphone ▶ There should also be a possibility to import a ticket reference.</p> 	<p>10 WP4 Tracker</p> <p>No GUI screen</p>	<p>11 Display alert / check alternatives ✔</p> <p>Real-time notifications about travel. Warning during the shopping process and during the journey.</p> 	<p>12 Display alternative itinerary offers ✔</p> <p>There is no alternative routes display once a route has been selected. ▶ Alternative routes need to be provided automatically.</p> 	<p>13 Select one alternative offer ✔</p> <p>One needs to search again the same itinerary to display alternative routes. ▶ Alternative routes should be quickly selectable in case of disruption.</p> 	<p>14 Select leg / user information ⋮</p> <p>The line timetable and the map of the leg are provided as well as platform and travel duration. ▶ More specific information should be quickly provided to address the passenger's needs (seat number, walking time...)</p> 

✔ Screen existing in HaCon applications

✘ No corresponding functionality

⋮ Screen partially existing in HaCon applications

▶ Recommendation

3 - Functional perimeter of the Travel Companion compared to the screens in HaCon applications

<p>15 Check validity of travel token </p> <p>There are not tickets so no validity check. ▶ The system should include a tapping system.</p>	<p>16 Update token if necessary </p> <p>There is no possibility to purchase or update tokens. ▶ If not up-to-date, the ticket should be replaceable by a valid one.</p>	<p>17 Validation of entitlement </p> <p>▶ There should be the possibility to validate an entitlement. > See In CaptainTrain</p>	<p>18 Check in/out </p> <p>▶ There should be the possibility to check in and out. > See In EasyJet</p>	<p>19 Receive permission </p> <p>There is no permission as there are no tickets. ▶ The user should have feedback upon validation or help if permission hasn't been granted.</p>	<p>20 Activate navigation </p> <p>The activation of the navigation exist but there is not enough affordance. ▶ Increase the visibility of the button.</p>	<p>22 Navigation Orchestration </p> <p>The leg information is precise but not sufficient. ▶ Add user friendly information: map, tickets, car sharing opportunities, directions...</p>
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<p>23 Positioning </p> <p>The position is automatically tracked and visible.</p>	<p>25 Navigation outdoor </p> <p>There is an outdoor routing.</p>	<p>26 Navigation indoor </p> <p>There is text and pictures Indoor routing. ▶ Provide more detailed information to better identify the path to gates/platforms.</p>	<p>27 User Position </p> <p>There could be more detailed information about the POIs nearby the user position. ▶ Display POIs nearby the user position.</p>	<p>28 Integration social media / External components </p> <p>Sharing on Social media (Facebook and Twitter) is possible but only from the menu. ▶ Social media sharing could be more contextual.</p>	<p>29 Check booking/ payment </p> <p>There is no booking or payment. ▶ Check my tickets and bills. > See In CaptainTrain</p>	<p>30 Ticket direct </p> <p>There is no ticket direct.</p>
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3 - Functional perimeter of the Travel Companion compared to the screens in HaCon applications

<p>31 Wallet</p> <p>No GUI screen</p>	<p>32 Activate tracking</p> <p>No GUI screen</p>	<p>33 Create travel companion user ✘</p> <p>There is no proper «profile»: the user can save contact information but no personal details related to his habits.</p> <p>▶ Add more personal information: meals, physical strength... > See in Quboxit</p> 	<p>34 Identify travel companion user ✘</p> <p>There is no possibility to select a traveling profile (personal, professional, etc) should be stored.</p> <p>▶ Different traveling profiles (personal, professional, etc) should be stored. > See in Captain Train</p> 	<p>35 Modify preferences ✔</p> <p>The user is able to modified travel preferences.</p> <p>▶ There should be the possibility to save different travel preferences.</p> 	<p>36 Retrieve travel data</p> <p>No GUI screen</p>	<p>37 Send travel data to e-passport</p> <p>No GUI screen</p>
<p>38 Retrieve travel data from e-passport</p> <p>No GUI screen</p>	<p>39 Register travel data</p> <p>No GUI screen</p>					

4 - Benchmark & recommendations for the Travel Companion



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4 - Benchmark & recommendations for the Travel Companion

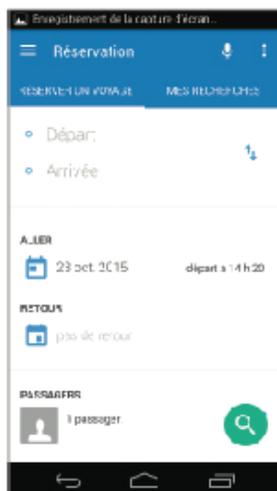
- Home
- Settings
- Menu
- Search
- Shopping
- Booking
- My trip



4 - Benchmark & recommendations for the Travel Companion

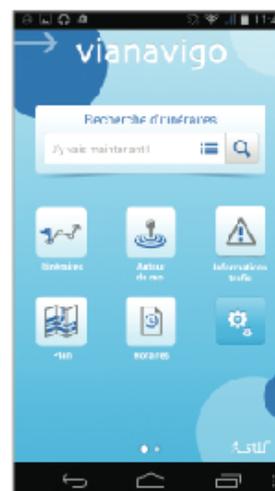
Good practices exemples for inspiration | Home page

The app could have a home page that welcomes the user and guides him/her through the functionalities and the things that can/should be done: book a trip or access my trips



Voyages SNCF

The home page is the journey planner directly.



Via Navigo

The home page is the reduced journey planner + a shortcut to main functions.



EasyJet

The home page is a dashboard of my trips + a shortcut to main functions.



Check my trip

The home page is the list of my trips with:

- departure + arrival time
- origin + destination
- departure + arrival terminal
- trip duration time
- trip date

4 - Benchmark & recommendations for the Travel Companion

Good practices exemples for inspiration | My settings

The user might be able to register different set of settings which should be clearly differentiate:

- his application settings;
- his user profile settings (long lasting settings);
- travel preferences related to his trips (possibly multiple profiles).

PROFILE

User profile

- Name
- Email
- Mobile
- Address
- Age

Payment profile

- Paypal
- Visa
- Miles

Preferences

- Food allergies
- disabilities

> Airfrance,
Captain Train,
City Mapper

APPLICATION SETTINGS

Language settings

GPS settings

Notification settings

- Means of communication (SMS, mail, phone notification, event in calendar...)
- Notification 2 hours before leaving
- Notification for when to check in

TRAVEL PREFERENCES

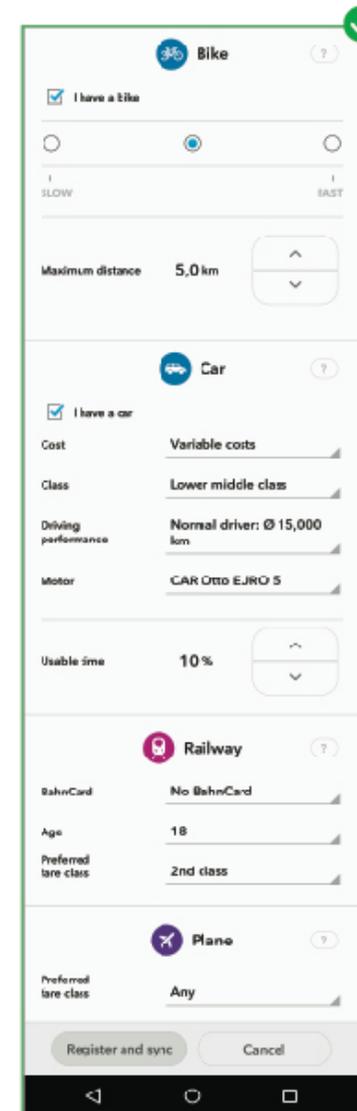
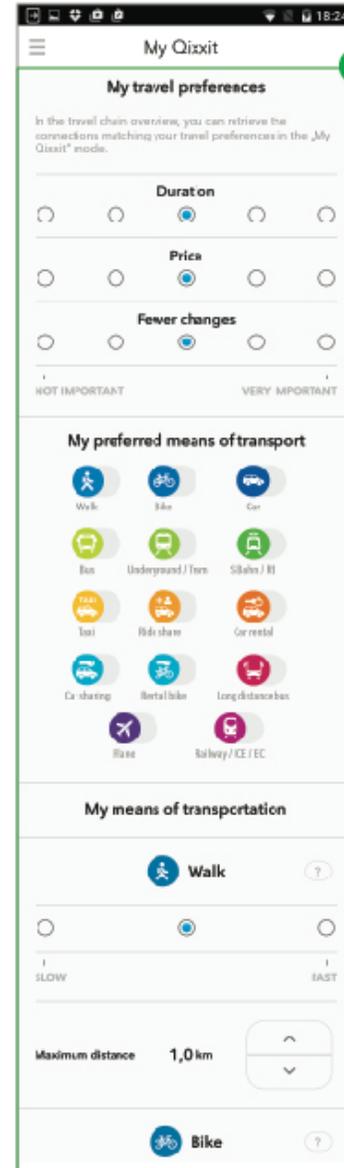
General

- Travel preference : duration, price and changes
- Default means of transportation

Per means of transport

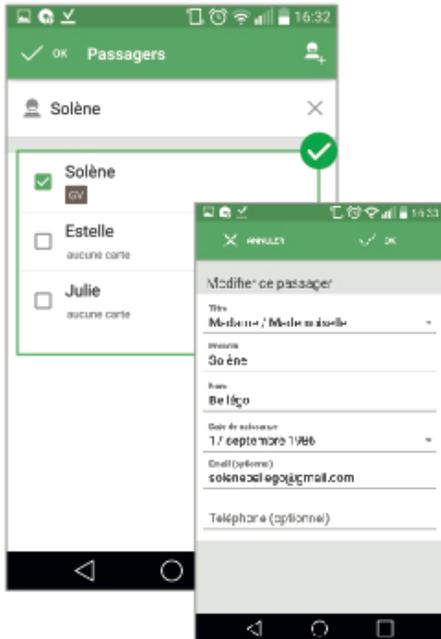
- Walking speed and distance capacity
- Cycling equipment, speed and distance capacity
- Car equipment, cost, class, driving experience, motor, usable time
- Railway reduction card, age and preferred class
- Plane preferred class

> Quixxit



4 - Benchmark & recommendations for the Travel Companion

Good practices exemples for inspiration | My settings



Captain Train

PROFIL

- Different users can be registered
- Add fidelity cards is possible



AirFrance

PROFIL

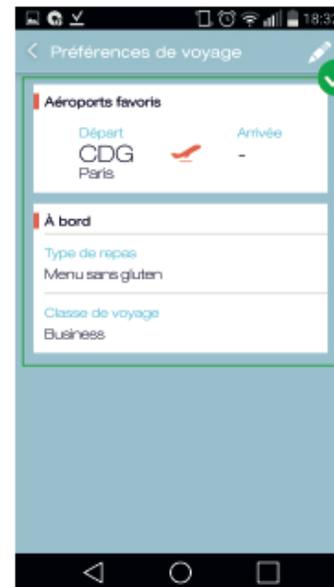
- Centralization of all data account in one place (personal informations like name, birthday - Mean of payment - personal trip preferences...)
- Fidelity account



City Mapper

PROFIL

- Easy connexion via social network.



4 - Benchmark & recommendations for the Travel Companion

Good practices exemples for inspiration | Menu wireframe

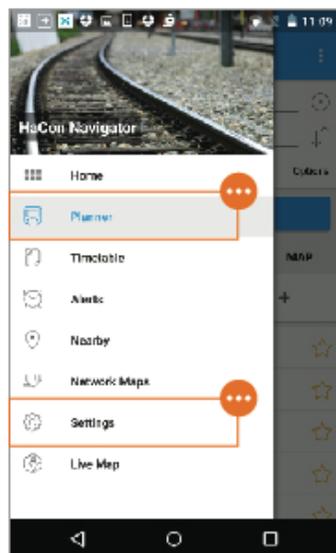
The menu should clearly state what the app is for:

- Shopping and booking new trips
- Being guided in detail throughout the trip

HaCon Navigator

2 existing functions are relevant for the Travel Companion:

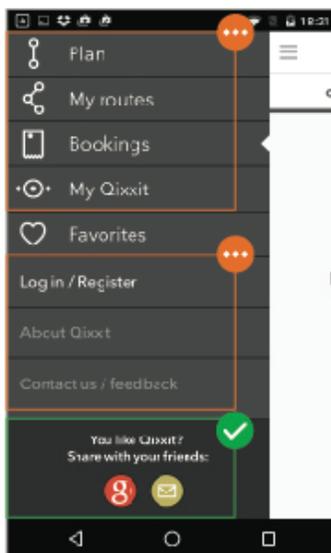
- Planner but it should include all possible means of transportation and allow purchase of tickets.
- Settings with the addition of my favorite means of transportation, reduction cards, meal preference...



Qixxit

8 existing functions are relevant for the Travel Companion but they should not all be presented as entry points.

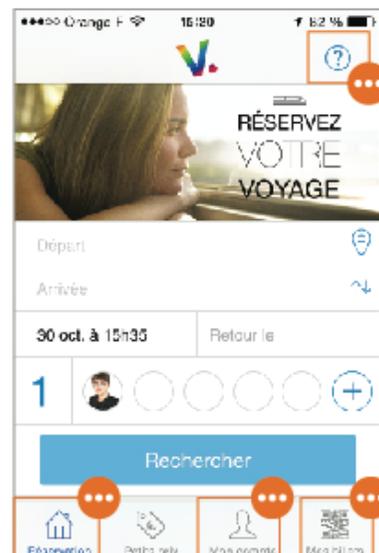
- Plan
- Bookings: tickets should be included in my Routes and can pop up automatically on the lock screen during the trip
- My Qixxit travel preferences
- Login, About, Contact are minor entries



Voyages SNCF

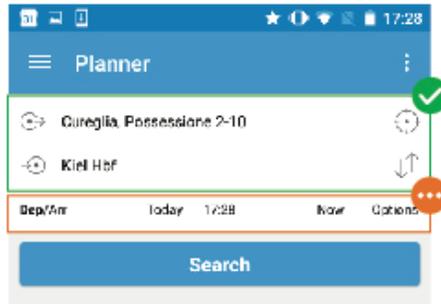
Good practice: reduced number of entries and relevant grouping of functions:

- Reservation: shopping and booking
- My account: my ID + preferences
- My tickets: my current + future trips
- Help: tutorial + contact info



4 - Benchmark & recommendations for the Travel Companion

Good practices exemples for inspiration | Search for a new trip



HaCon Navigator

The HaCon planner does not allow 2 ways trips and does not include plane, car share, bike share or rentals.

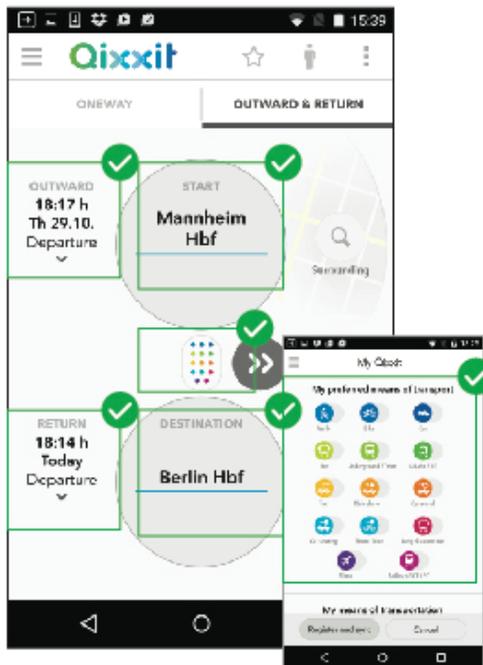
The options are not visual enough: the size and the absence of pictograms makes the ledgibility harder.

The options are not user friendly as they ask for precise connexion time rather then relative values like in Qixxit.



AirFrance

The Air France app makes it easy to book for different profiles



Qixxit

Qixxit allows an easy preferred means of transport selection. All the entry fields offer sufficient affordance due to their size, position and colors.



Voyages SNCF

The position and size of the destination and user profile are well suited to a mobile use.



RATP

Easy to choose between:

- quickest
- less correspondances
- less walking

4 - Benchmark & recommendations for the Travel Companion

Good practices exemples for inspiration | Search for a new trip



Kayak

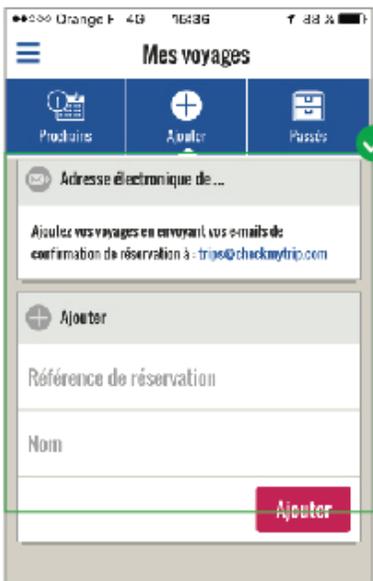
Kayak allows the user to send his/her ticket to a kayak email address that will automatically load the ticket in the app and offer many options to the traveller.

There should be a way to copy/paste this email address.



Voyages SNCF

In the tickets section, the user can add tickets bought outside the app by entering reference numbers.



CheckMyTrip

The app allows the user to send his confirmation via email or to enter manually his ticket reference in order to store tickets and get door-to-door assistance.



4 - Benchmark & recommendations for the Travel Companion

Good practices exemples for inspiration | Shopping for a journey

Journey planners comparing journeys according to departure time, duration time and modes

HaCon Navigator

The shopping process visualisation is usable and clear. It does not include price comparison but only:

- total time
- number of changes
- departure and arrival times
- means of transportation



Google Map

Google Map is similar to Hacon for representation of horizontal journeys. It includes:

- departure and arrival times
- means of transportation
- total time
- walking time

A nice addition: the itineraries can be filtered by:

- preferred means of transportation

The itineraries can be sorted by:

- best itinerary
- less changes
- less walking time

Qixxit

Qixxit is similar to Hacon for the vertical timetables. It includes:

- departure and arrival times
- means of transportation
- total time
- price
- CO2 emissions

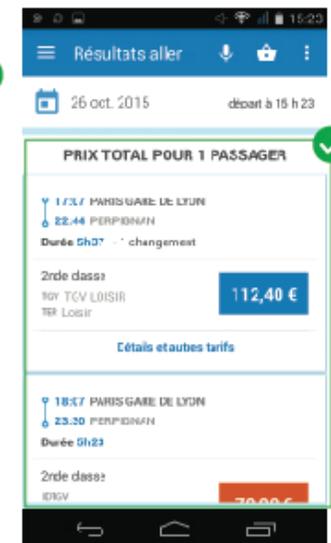
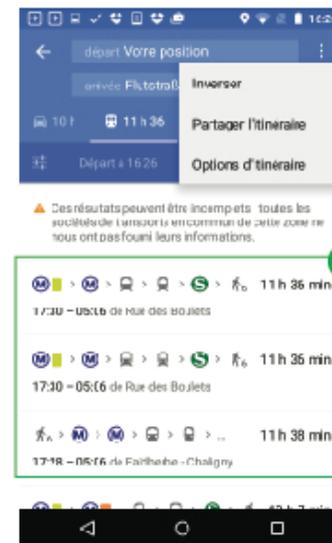
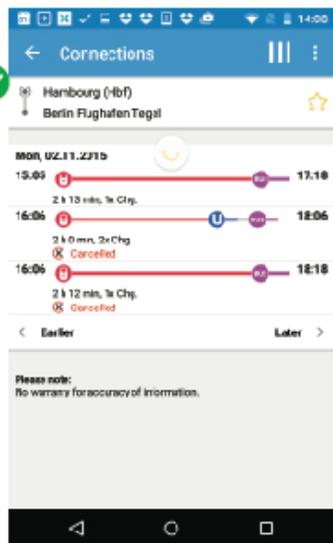
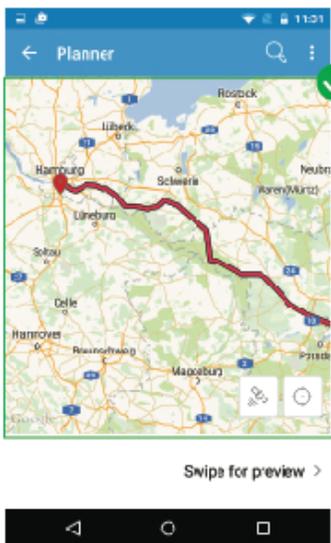
A nice addition is that the itineraries can be sorted by:

- recommended
- price
- time

Voyages SNCF

The app shows in a list:

- departure and arrival times
- means of transportation
- total time
- number of changes
- class
- price



4 - Benchmark & recommendations for the Travel Companion

Good practices exemples for inspiration | Shopping for a journey

Flight Booker comparing journeys according to departure time, duration time and price

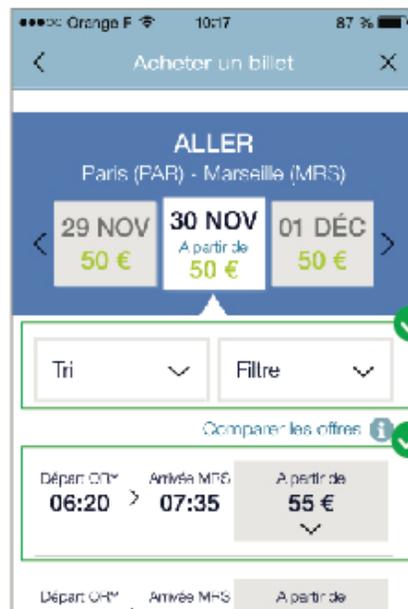
Skyscanner

The shopping process visualisation displays price ranges according to different dates + a calendar view mode or a bar chart view mode.



AirFrance

The shopping process visualisation is a carousel of dates and then a list of times and prices.



Easyjet

The shopping process visualisation is also a carousel of dates with a list of time and prices.



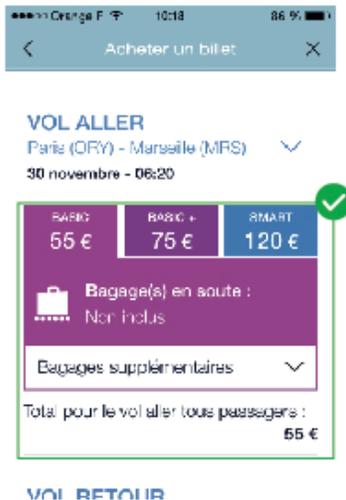
4 - Benchmark & recommendations for the Travel Companion

Good practices exemples for inspiration | Booking & Ticketing

Booking / ticketing

CHOOSE CLASS

Preview all price class and associated options.



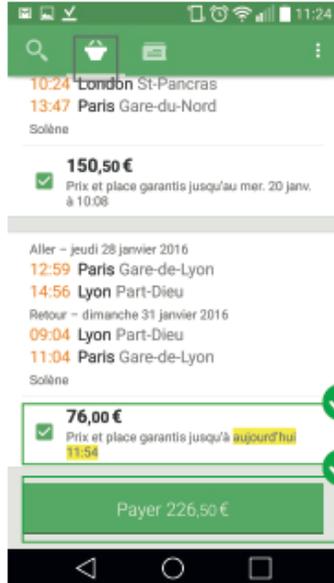
Booking / ticketing

BASKET OVERVIEW

Shopping basket with tickets overview and price for each.

Overall price must be unambiguous

When it's possible, tickets stay on the basket with place and price guaranteed until a significant change



Booking / ticketing

ADD PAYMENT MEAN

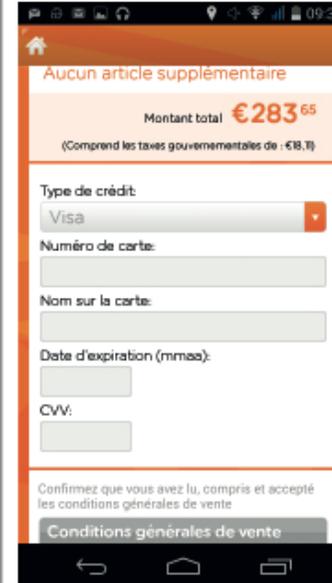
Choose payment mean in the list or add a new payment mean (first time, new credit card...).

This screen is in the tickets purchase process during the initial purchase and accessible at all times in My settings > Profil



Booking / ticketing

PAYMENT FORM



Booking / ticketing

CONFIRMATION AND TICKET ACCESS

The tickets are stored in the app with the possibility to delete, share or situate them on a map.



4 - Benchmark & recommendations for the Travel Companion

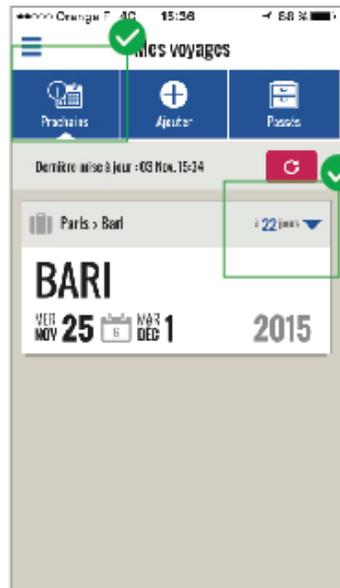
Good practices exemples for inspiration | My trips

Check my trip

UPCOMING TRIPS

List of upcoming trips

- days remaining before the trip
- key actions like check-in



Check my trip

ADD A TICKET

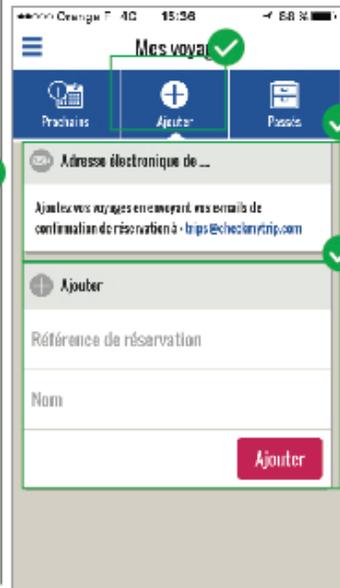
Tickets bought outside the app can be imported in the app in 2 different ways:

Add via mail

Send the reservation to the software and it will convert it automatically into a e.ticket

Add the reference

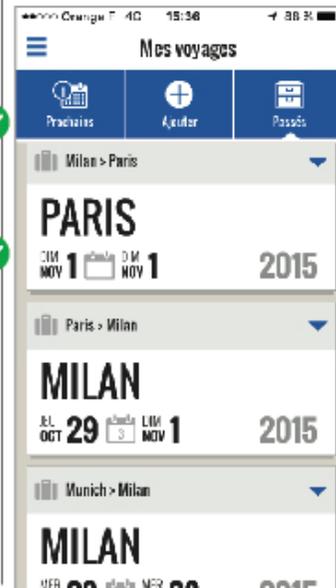
Manually enter the reference number.



Check my trip

PASSED TRIPS

An history of the past trips is available with all the information saved (picture of luggage...)

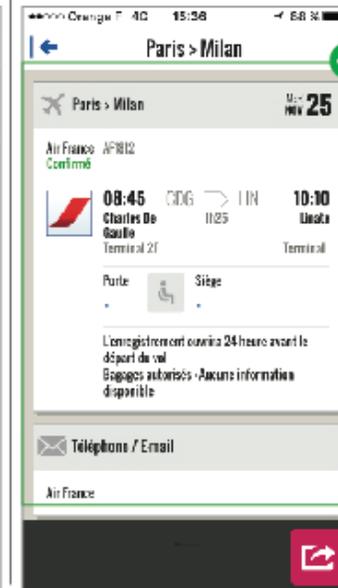


Check my trip

UPCOMING TRIPS

A lot of personal and real time info are available:

- destinations
- dates
- companies
- times
- durations
- terminals
- gates
- seat numbers
- times before boarding
- companies' contacts



Check my trip

TRIP TOOLS

A trip can be:

- shared
- the price can be converted in other currencies
- the trip can be added to the phone's calendar
- the local weather can be seen
- a trip map and itineraries can be accessed
- photos can be taken (i.e. the luggage before check-in)
- attached photos can be viewed



4 - Benchmark & recommendations for the Travel Companion

Good practices exemples for inspiration | My trips

Mon compagnon de voyage
> Mutuaide assistance

Provide access to safety infrastructure during the trip:

- medical structure
- consulat assistance
- local emergency number
- theft or loss of ID papers

Mon compagnon de voyage
> Mutuaide assistance

Provide access to information useful during the trip:

- weather
- ID papers required (passeport, visa...)
- currency convertor
- translator
- map

Kayak

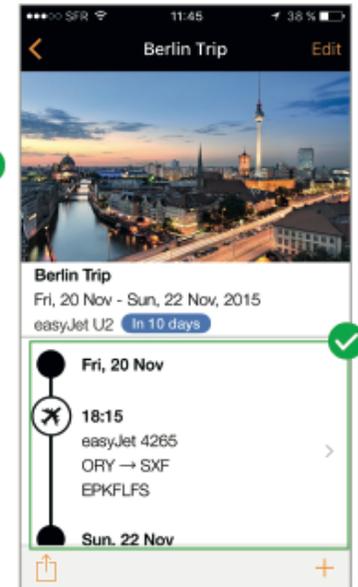
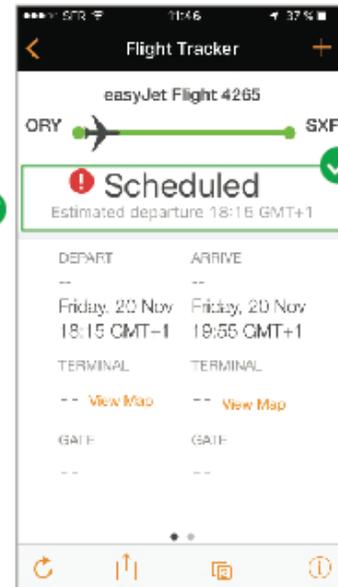
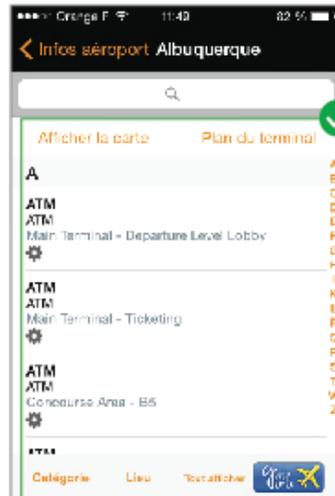
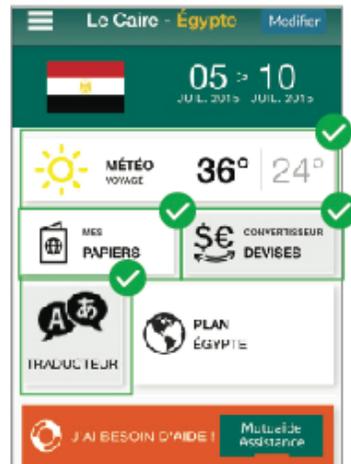
Provide access to the list of infrastructures in all main airports

Kayak

Ticket with notification of potential delays

Kayak

Step-by-step itinerary





Shopping
Real time

Innovation
Open Interfaces
Door to Door
Seamless Travel
Business Analytics

Digital

Multimodal
Ticketing
Tracking
Web of Transportation
Travel Companion
One-stop Shop

Connectivity

Technical Enabler Cloud

Re-accommodation
Attractive Railway
Services

Interoperability

