

televic

# GUIDE

## Designing an intuitive Passenger Information System in 8 steps

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# Intro: why some information systems are more intuitive than others

There isn’t any one-size-fits-all approach to inform passengers about their journey. The way rail operators communicate depends on:

- The passengers’ needs.
- The operator’s goals.
- The types of trains.

In this guide, you’ll learn how to set up a tailored passenger information system and how our LiveCoM Suite can help you achieve this. LiveCoM Suite is TelevIc Rail’s end-to-end solution to maintain communication with passengers on-board the train. If you need further assistance with any of the topics in this guide, feel free to get in touch.

# Step 1: Analyse your passengers

Tourists exploring a new country, student groups travelling to university or commuters going to work: whatever your passengers' destination, they all need ambient information.

This consists of contextual, non-intrusive messaging they can retrieve from their surroundings, instead of relying on interaction with mobile phones and other digital devices. The result is a stress-free passenger experience.

But different types of passengers also have different information needs. Passengers in a wheelchair need to know where they can disembark safely. Commuters may prefer silent cars with minimal auditive announcements and more information on displays.

Set up multiple passenger profiles or personas to help you understand your target audience and determine what is relevant and helpful to them.



Passenger personas differ across regions and types of trains (urban rail transit, commuter trains, long-distance rail, sleeper trains, high-speed trains…). The few examples below should help set you on the right track.

## Tourist explorer - Maria



**Name:** Maria
**Age:** 32
**Occupation:** Blogger / Photography
**Background:** Maria loves to travel and explore new places by train. She enjoys immersing herself in local culture, cuisine, and attractions. She loves that while on the train, she can edit her photographs and write blog articles about her experiences.

**Characteristics:**

- Curious traveler: Maria relies on her surroundings to learn about the history, landmarks, and interesting facts about the places she passes through.
- Multilingual: She appreciates multilingual announcements as she travels to foreign countries where she does not know the languages.
- Photography enthusiast: Maria wants to know where the train is passing through scenic landscapes, ensuring she does not miss any photo opportunities.

## Commuter - James



**Name:** James
**Age:** 42
**Occupation:** Technical manager
**Background:** James is a regular commuter who travels to work by train every day. He is well-acquainted with his route and uses his commute time to prepare meetings and presentations.

**Characteristics:**

- Routine-oriented: James relies on ambient information to confirm the train's schedule and any unexpected service disruptions. He wants to know whether he will arrive on time or needs to inform his colleagues about a delay.
- Comfort-focused: He values information about seat availability to ensure he can work on the train.
- Time-conscious: James appreciates updates on train arrival times, platform changes, and follow-up transport, especially during peak rush hours, to minimize his waiting time.

## Tech-savvy student - Emily



**Name:** Emily
**Age:** 21
**Occupation:** Student and entrepreneur
**Background:** Emily is tech-savvy, relying on her smartphone and smartwatch for many daily activities. She is constantly connected and values efficient, convenient, and digital solutions. She travels with fellow students and is always in interesting discussions with them.

**Characteristics:**

- Relies on real-time information: Emily relies on her apps to track the train's location and potential delays. She expects all information to sync across station displays, onboard information, and her apps.
- Sustainability: Emily is environmentally conscious and appreciates information on the train’s eco-friendly initiatives
- Distracted: Emily gets easily distracted by items on her social media apps and by discussions with her friends, and appreciates a wake-up call when arriving at the station.

## Elderly - Robert



**Name:** Robert
**Age:** 75
**Occupation:** Retired
**Background:** Robert is a retired school teacher who occasionally uses the train to visit old friends and colleagues. Robert has difficulties with hearing if there is a lot of background noise. He likes to travel off-peak to ensure he can have a calm journey.

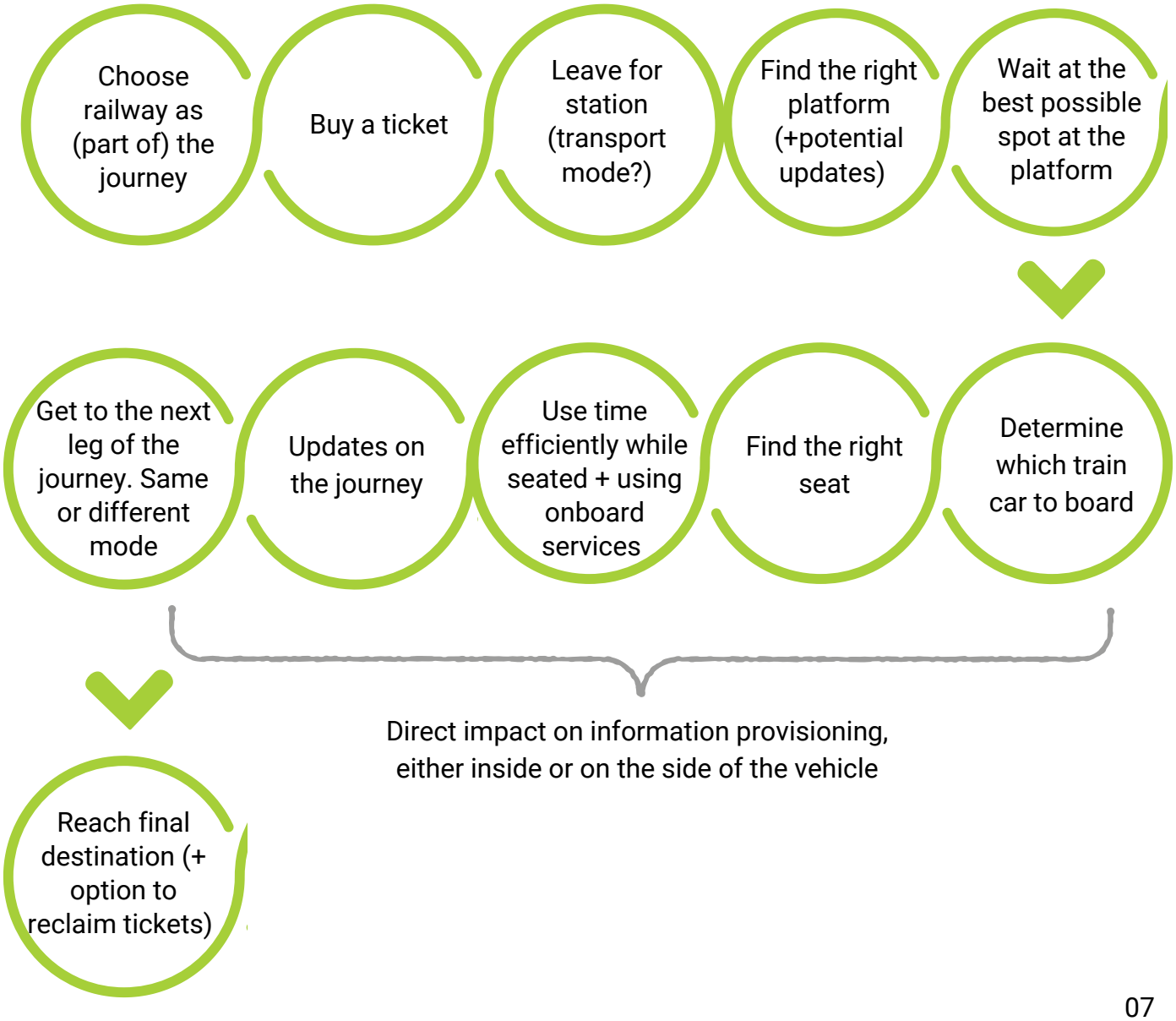
**Characteristics:**

- Relies on ambient information: Robert does not often use his smartphone, only to call his daughter occasionally. He relies on the information available to get around, using station displays, asking the conductor, and the onboard information system, especially the visual displays, because of his hearing impairment.

# Step 2: Analyse the journey

Passengers require specific information depending on where they are on their journey. For example, while boarding, they want to be sure they enter the train's right section. Before arrival, they want to be informed of the possible connections.

You can gain insight into your passengers' information needs by means of surveys, workshops or even passenger behaviour analyses. Below, we've identified the different stages in a typical passenger journey. We've also provided examples of relevant information.



## Stage 1: before the trip

• Looking up train schedule information, using journey planners to determine the end-to-end journey.
• Booking tickets for the different segments, gathering information on different fares, ticket options, validity, etc.
• Preparing the trip, when to arrive at which point, and getting updates on any changes in the schedules.

## Stage 2: before boarding the train

• Receiving updates on the onward journey (delays), updated boarding time.
• Finding out the platform on which the train will arrive.
• Looking up the best position on the platform to access specific cars/coaches (number/area/etc.).
• Requesting assistance services (e.g. for passengers with reduced mobility).



## Stage 3: while boarding the train

- Making sure they're boarding the right (section of the) train by checking the train's destination.
- Checking that they're boarding the right car, e.g., silent compartments, cars with bicycle spaces, first-class or pre-ordered seating, and wheelchair-accessible cars.
- Locating designated areas such as luggage or bike storage compartments.

## Stage 4: information needs during the journey

- Travel updates on the current journey, e.g.:
    - o Delay information and estimated arrival times.
    - o Cancelled or unexpected stops.
    - o Journey progress, current location, next stops.
    - o On-board services, snack coaches, toilet facilities, Wi-Fi access, etc. and availability.
    - o Changes to the normal schedule.



- Connection options and information on the next station.
- Point of interest-related information, tourist attractions, etc.
- Disruption information, e.g.:

  o Emergency information (location of emergency exits, contact numbers, and procedures).
  o Current disruptions to the journey.
  o Network disruptions (station-related/route-related).
  o Planned disruptions that will impact future journeys.

- Customer success:

  o Promotional campaigns by the operator, ticket sales.
  o Lost and found information.
  o Complaint filing, procedures for delay-repay.








## Stage 5: upon arrival

- Getting confirmation of the arrival station.
- Locating the connecting transport options.
- Which side/coach to exit the train.
- Information on station facilities or directions in the station.

The above list is non-exhaustive. Tailor and expand this list to your passenger personas and services.



Different passenger personas may have different information needs at certain stages.

Occasional travellers like Robert want to ensure they're boarding the right train, while experienced commuters like James want to find out where the silent car is, or where his assigned seat is located.

LiveCoM Suite allows you to trigger contextual information based on the current journey stage: the current location, the next station type, exit side, direction changes, train splitting.

# Step 3: deliver consistent information

You can distribute real-time information via different channels: station and on-board displays, websites, apps, etc. In many cases, these channels get their data from different feeds that aren't necessarily synchronised. This may result in conflicting messages, with passengers not knowing which source to trust, which is far from a stress-free experience.



For a passenger like Emily who is always online, inconsistent information between her app and the on-board screen may trigger a lot of stress.

The solution: connecting all channels to the same source of information. Different standards exist for real-time information dissemination. GTFS/GTFS-RT is a widely used standard. Using this standard, you only need to update one source of information, which greatly reduces complexity.

Other solutions like journey planners and wayfinding tools can tap into the same information, greatly improving consistency for passengers.

Integrate the LiveCoM Suite with a central information source to deliver real-time information to the on-board PIS. Read more about the 'single source of truth'.

# Step 4: choose the right channels

There are multiple ways to transfer information to passengers: attractive visuals on the onboard displays, crystal-clear audio announcements, and accessible information on the outdoor displays. Your goal is to make sure that the message reaches the right passengers.

Some information and/or channels may only be relevant in specific parts of the train.

Some examples:

- Complementary food services that are only available to certain coaches.
- No audio announcements in a silent car.
- In the case of splitting trains, the calling pattern and destination differ depending on the part of the train.

LiveCoM Suite allows you to address the on-board output using so-called ‘tags’ (e.g. first/second class, silent car, resto car). This ensures that specific information is channelled only to the relevant passengers.

Using different information channels also ensures that passengers do not miss messages. If they are struggling with a certain channel (e.g. visually or hearing-impaired passengers) or cannot be reached by one of the channels (e.g. passengers using noise-cancelling headphones), they can rely on other options.



For passengers like Robert, having other options than audio announcements is vital for a stress-free experience.

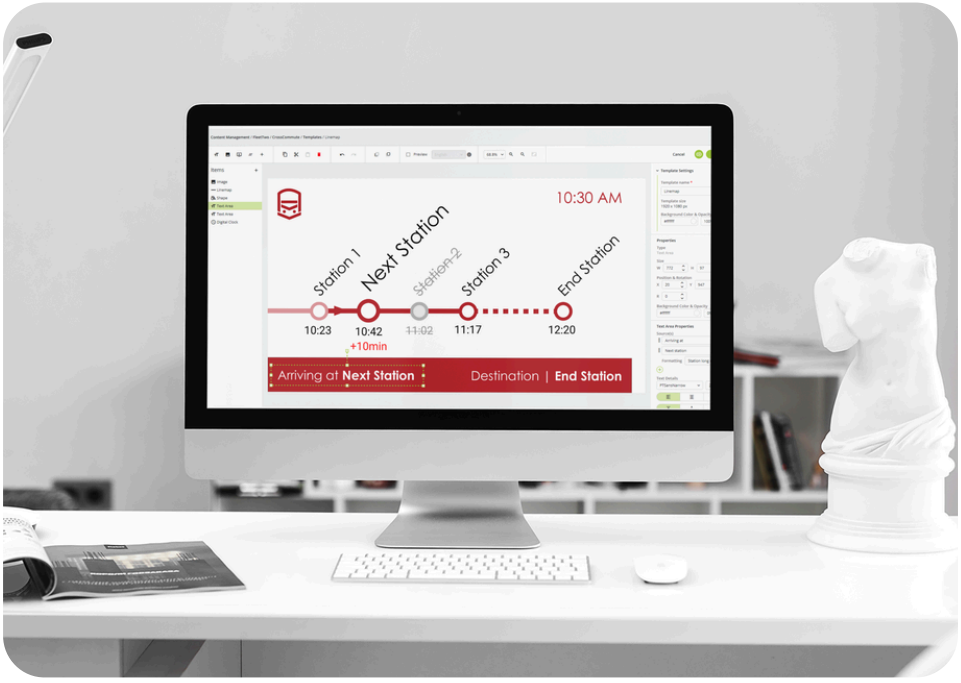
In addition to synchronising the input (step 3), synchronising the output across different channels is also important. You don’t want to confuse passengers with inconsistent timing.

LiveCoM Suite lets you group audiovisual announcements in the playlist editor. This ensures that their dissemination starts in a synchronised manner across the different output channels.

Passengers are reached comprehensively as a result, as they can hear the main message through an audio broadcast and read or see supplementary details on the displays.

In addition to text and audio announcements, a line map helps passengers quickly grasp the current journey status, including delay information and journey changes. Delivering the same information through an audio broadcast would be less efficient and more difficult for passengers to understand.

Creating clear visual representations can be challenging. LiveCoM Suite provides you with a set of easy-to-use widgets to visualise messages in no time.



# Step 5: make communication accessible to all

How do you make your passenger information accessible to everyone? Consider alternatives, such as:

- Using hearing aid loops.
- Coupling manual announcements with an innovative speech-to-text solution.
- Providing synchronised information on all channels in different languages.

On-board audio communication remains the primary channel for delivering your messages to all passengers. Having a high-quality audio system greatly improves the clarity of these messages. But audio quality matters equally at the input side.

Whether you are using pre-recorded announcements, text-to-speech vocalisations or a combination of both, messages need to be carefully prepared. Ensuring studio-quality recordings, normalising speech volumes for consistency, and providing clear pronunciation are all important aspects.

In multi-cultural and international settings, you want to provide essential information in multiple languages. Non-local passengers often solely rely on the passenger information system to get around, and trains may cross (language) borders, impacting local passengers as well.

You can achieve multilingual communication through a combination of visual cues (icons, graphics, etc.) in parallel with audio announcements in different languages.

International passengers like Maria are reassured during their journey by announcements in a ‘lingua franca’.



With LiveCoM Suite, it is possible to define all text and audio fragments in different languages. You define the information once and play it back automatically in the desired languages, based on specific conditions. You can apply this to the full passenger information storyboard, or under certain conditions (e.g. when arriving at an international airport). Read more about automated announcements in multiple languages.

# Step 6: choose a strategy to handle disruptions

Disruptions like delays, schedule changes, and missed connections cause confusion and stress. With accurate and timely information, you ensure a care-free experience. One way to do this is by coupling your passenger information system with a real-time information source (see step 3).

In case of severe disruptions or emergencies, you may use a more intrusive manner of communication, like pre-recorded or ad-hoc messages by the operational control centre (OCC). In any case, informing your passengers about the nature of the disruption and outcomes, like delays and alternative routes or even safety instructions, is key.



For commuters like James, finding out whether he will make it to the 10 a.m. board meeting is crucial when things go wrong.

# Step 7: mind the regulations

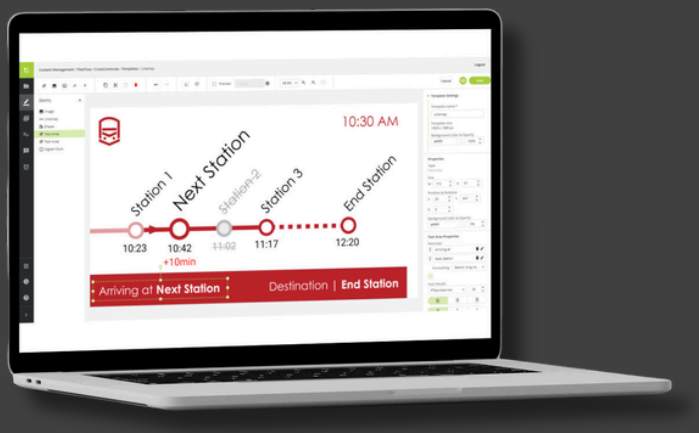
In some regions, specific regulations apply to passenger information systems. The EU has the Technical Specifications for Interoperability (TSI), with the Persons with Reduced Mobility (PRM) specification.

TSI PRM outlines requirements for audiovisual passenger information, including guidelines on readability, contrast, font sizes, synchronisation of audible and visual information, and language considerations.

It also specifies guidelines on the minimum information you must provide during certain journey stages (e.g. announcing the next stop). Note that in addition to the TSI PRM, individual EU Member States or even Public Transport Authorities may have their own specific requirements and adaptations. The Americans with Disabilities Act (ADA) sets similar regulations for operators in the United States.

The content management module in LiveCoM Suite provides all the necessary tools for configuring your passenger information system in line with local regulations. You can adjust font sizes, colour schemes, scroll speeds, multilingual announcements, and audiovisual synchronisation.

You can also format emergency, disruption, and real-time information according to specific regulations. If necessary, we'll support you with additional services to ensure the passenger information content complies with these regulations, providing a TSI/ADA-compliant content database fill.



# Step 8: finetune the system

After you designed and implemented your passenger information system, you need to check that all the needs of your passengers are fulfilled. You can validate and finetune your PIS in a lab test setting with a small group of passengers or using A/B testing.

In that case, you can try out different approaches on (a) designated pilot vehicle(s) and gather passenger feedback in a realistic setting. This allows for effective monitoring and continuous improvement.

LiveCoM Suite enables you to seamlessly adapt your passenger information system at all times. More specifically, you can manage multiple versions of the PIS configuration from the content management system. You apply changes from the application and push them to the train.

To put A/B testing into practice, simply target only specific vehicles with a certain version.

## Book a demo

Now that you've learned how to design your own intuitive passenger information system, let's put theory into practice. Book a demo and discover how our LiveCoM Suite can help you design your PIS.

**Book a demo now**

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