AUN2014 : Airports in Urban Networks
15-16 Apr 2014 CNIT - Paris la Défense (France)

DLR

Intermodal Augmented Scheduling

Rudolph, Florian *, German Aerospace Center, Germany
Grunewald, Erik, German Aerospace Center, Germany
Guenther, Yves, German Aerospace Center, Germany
Piekert, Florian, German Aerospace Center, Germany

* *florian.rudolph@dlr.de*

Content

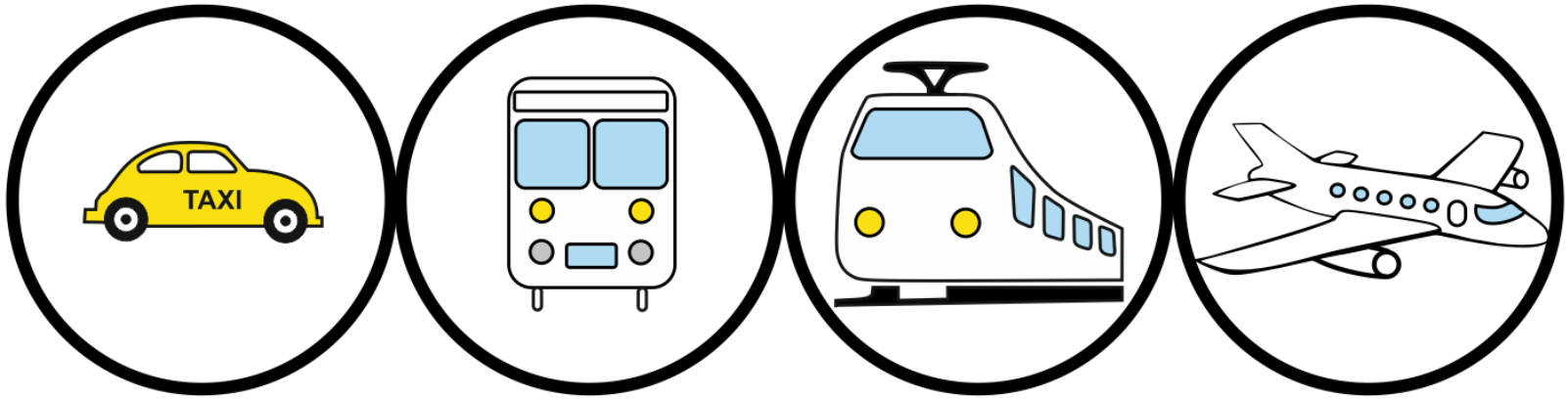
- The Problem
- The Idea
- The Details
- Related work
- Conclusion and Further work

The Problem (1)

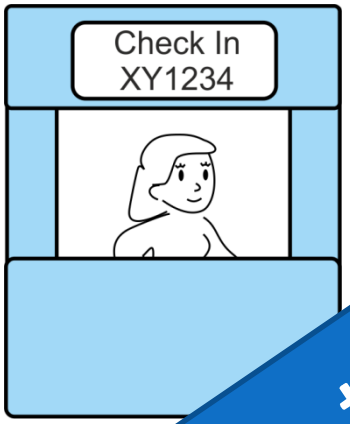
- The Problem
  - He who travels has something to recount.
    - Consideration of necessary buffer times
    - Journey is planned usually on information of static timetables
    - In reality, the day of travel will see unavoidable deviations of the plan.
    - In the current system, the customer can at best only react to such events when he actively seeks real-time information.

The Problem (2)

- Transport service providers generally do not know the current transportation demand
- Their infrastructure runs at best according to the timetables they have set for themselves.
- This situation of uninformed individuals forms a cumulative disadvantage for transportation operators.



The Problem (3)



- Nei… the airline therefore have an …actively reacting to the current … before the journey begins.
- …nagement would help to optimize the use of …rces and, at the same time, serve each customer …dividually.

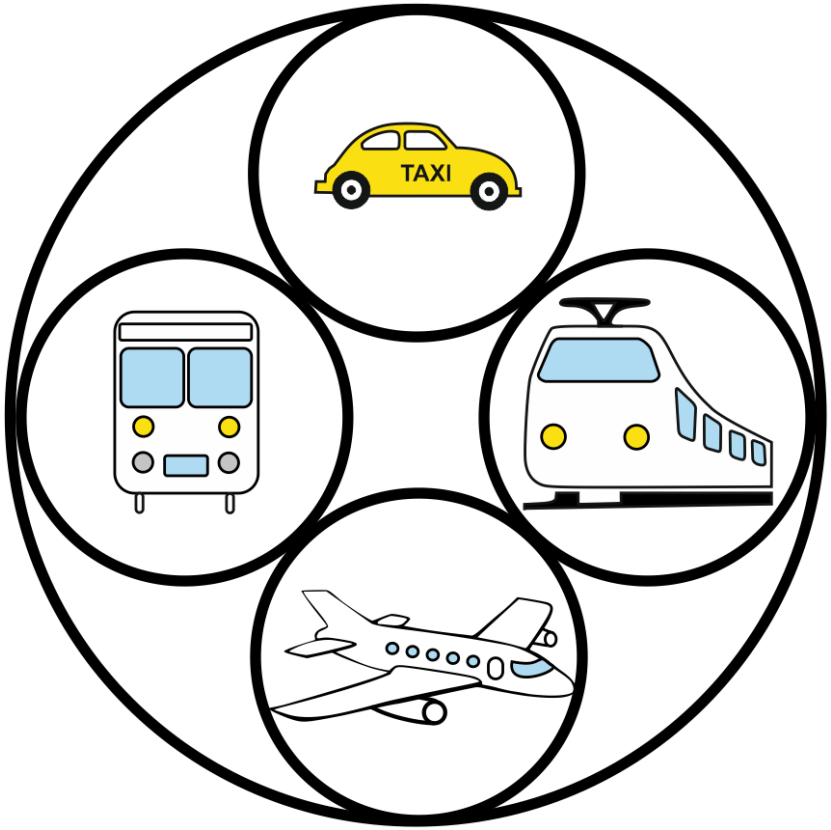
Then he who travels would be able to count on it.

The Problem (4)

- ACARE Flightpath Vision 2050 *Meeting societal and market needs*
  - European citizens are able to make informed mobility choices.
  - 90% of travelers within Europe are able to complete their journey, door to door, within 4 hours.
  - Flights arrive within one minute of the planned arrival time (approach: not only is the punctuality of the flight improved but, and above all, the quality of planning increases.)

The Idea (1)

- *Intermodal Augmented Scheduling* is intended to show how the information exchange between the transportation providers and the passenger when there is a change in the transport chain guarantees the best possible continuation of the journey.



The Idea (2)

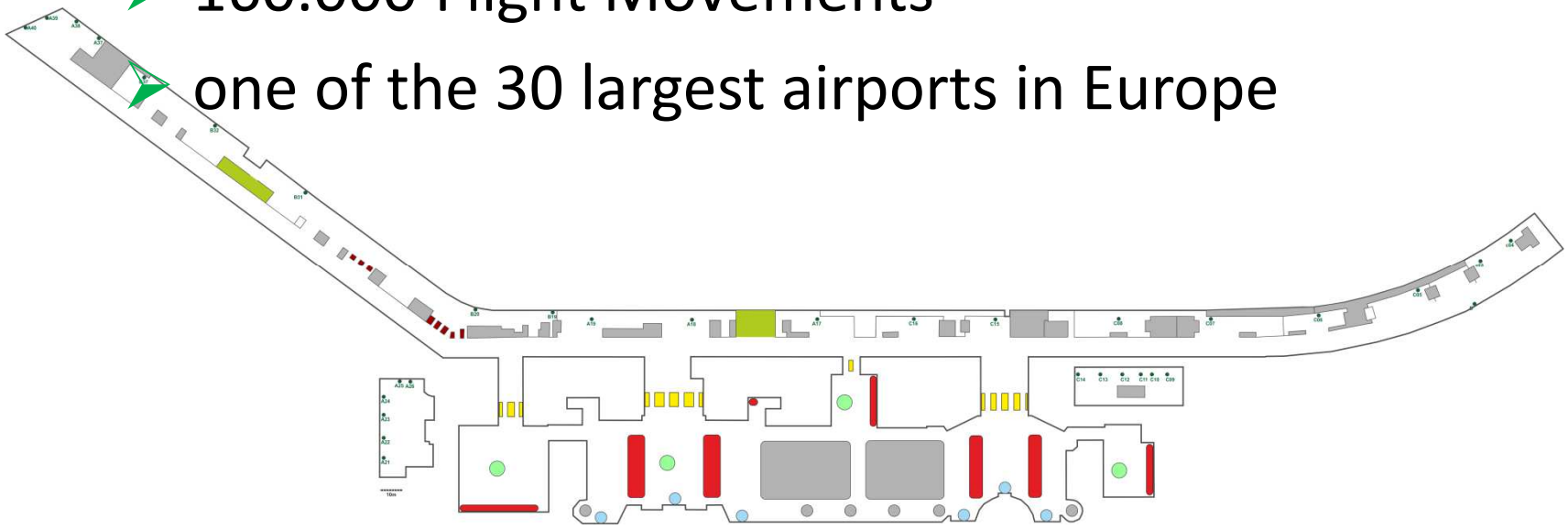

Helsinki
Helsinki
Edingburgh
Edingburgh
London
2h
3h
4h
Paris
The Destination is the goal !

The Details (1)

- 3 scenarios in each expansion stage.
- Each describe a particular scope of study which is expanded with each individual scenario so that the complexity of the issue of the modes of transport increases with each scenario.

The Details (2)

- Standard Edition
  - classified as an International Airport
  - 13.5 Million Passengers per year
  - 160.000 Flight Movements
  - one of the 30 largest airports in Europe



The Details (3)

- Rail Access
  - Of the 30 largest airports, 22 have direct access to rail transport.
  - For a large number proportion, the number of connections indicates a high frequency and thus a quick continuation of the journey.
  - Accessibility of an airport has a considerable influence on the traveler's choice.

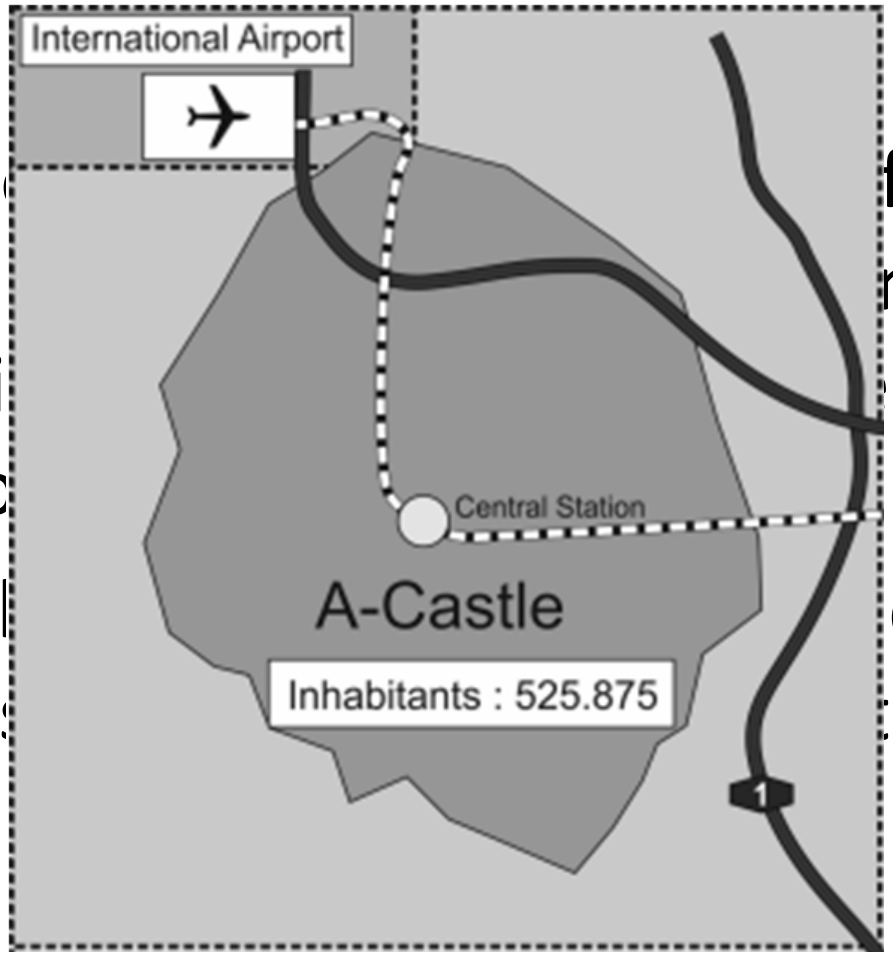
The Details (4)

Access mode	
Bus/coach	29%
Tram	1%
Underground	1%
Metro rail(„S-Bahn“)	46%
Short-distance rail (Regional trains)	8%
Long-distance train (Intercity/ICE trains)	15%

- journey to the airport by public transport is dominated by the S-Bahn metro rail (46%)
- a significant number of passengers who travel a longer distance to the airport by public transport first reach the main train station in the city

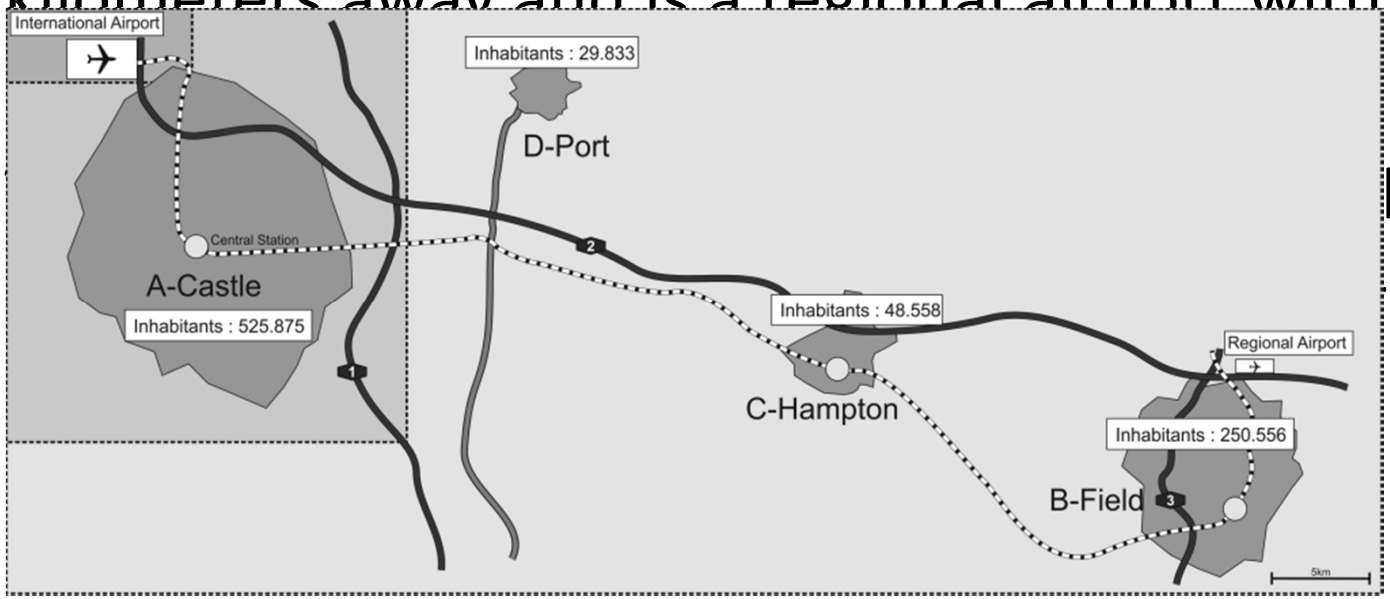
The Details (5)

- A region scenario to accomm for the first scenario nection and a long-di center of the regic
- The city d 525,000, this is as he internati



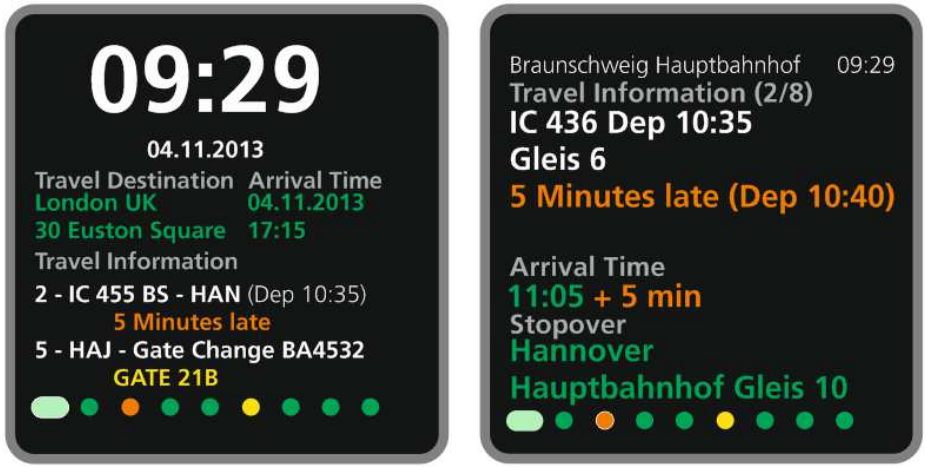
The Details (6)

- Remote Capacity
  - A-Castle has an international airport
  - The alternative airport is in B-Field about 60 kilometers away and is a regional airport with a
  - by a

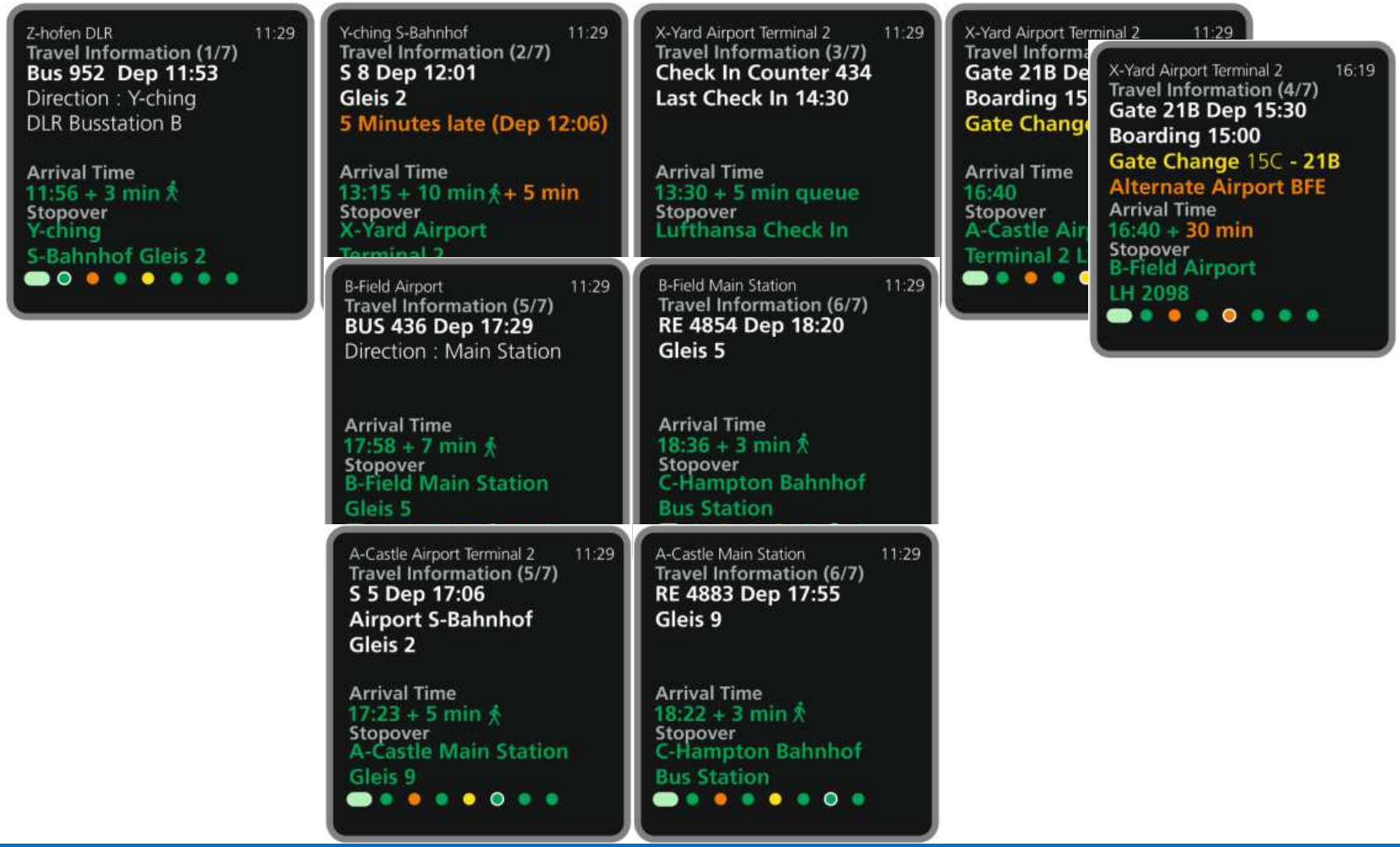


Related Work (1)

- In order to make the information generated by the travel management usable for the passenger, an HMI concept was developed which showed the necessary KPIs and passenger trajectories in aggregated form.



Related Work



Conclusion and further Work

- The concept's ideas will be expanded upon in the OPTIMODE project with the aim of compiling a set of rules and specifications to make this concept achievable.

OPTIMODE

Conclusion and further Work

```
1  System.out.println("Are there any questions?");
2
3  while (questions > 0) {
4
5      question_string = voice.readLine();
6      String answer = answer_question(question_string);
7      System.out.println(answer);
8
9      questions--;
10     }
11
12     System.out.println("Thank you for listening.");
13
14     /**
15      * Florian Rudolph
16      * florian.rudolph@dlr.de
17      * 0049-531-295-2587
18      */
```