Fluidtime scenarios

Michael Kieslinger 2001

Detailed Service Scenario Descriptions

The following chapter discusses twelve scenarios where Fluidtime can play an important role in more detail. We will look at the current situation and describe if first steps have already been. Public Transport companies are nowadays experimenting with SMS and WAP technology, so do Airports and Express Couriers.
We will describe in which way the Fluidtime service can change the way of how people wait. Fluidtime wants to provide a proper and useful service to the users. This not only depends on new networking technology that allows users to be always connected to the web, but also on finding the right interaction models that support everyday life and don't become burdening technology difficult to use.
The chapter lists the benefits as well as the technological feasibility of using the Fluidtime service. It also gives figures on potential Fluidtime subscribers.

Schedule based Fluidtime service

In the schedules section we will discuss the following examples:

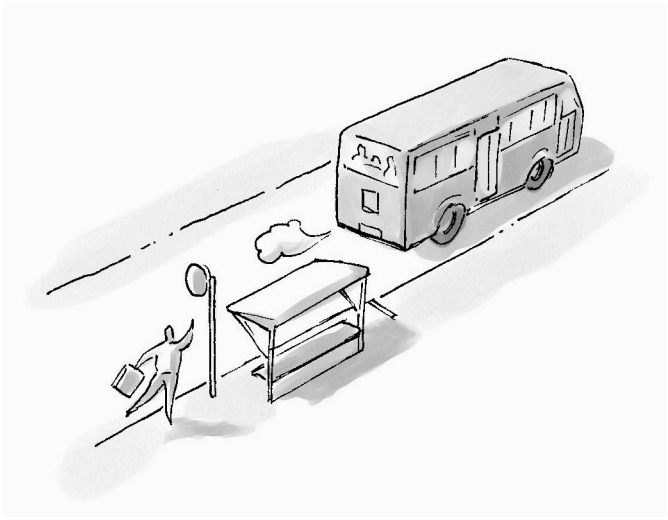
- Public Transport
- Trains
- Airplanes
- Express Couriers
- Doctors and Hospitals
- Customer Service
- Appliance Time

Queue based Fluidtime services (Availability of Products and Services)

Fluidtime differentiates between two types of cues: numbered and unnumbered queues.

- Passport Office
- Banks, Shops, Canteens, etc.
- Ski lifts, Amusement Parks and other tourist attractions
- Shared appliances

Public Transport (Buses, Underground, Trams)



SO FAR:
Often city buses or undergrounds do not run on a schedule but in intervals. This means that people don't know when the next bus is due to arrive, and it becomes frustrating to miss the bus and to wait for ages for the next one.

FIRST STEPS:
Some public transport authorities are already developing some prototypes that work on SMS and WAP technology. This technology though doesn't allow the user to monitor changes on a constant basis, and needs always to reconnect, making it difficult to use. One example is the TITOS project in TURIN.

FLUIDTIME:
Fluidtime takes real-time updated traffic data and makes them available to the public transport users. Fluidtime users can monitor the arrival time of the next vehicle, sparing themselves seemingly endless waits.

BENEFITS:
Provider: people are more motivated to take public transport -> increase of Passengers who are also less frustrated
Subscriber: Passengers can choose not to wait at stops, know arrival time and are less stressed.

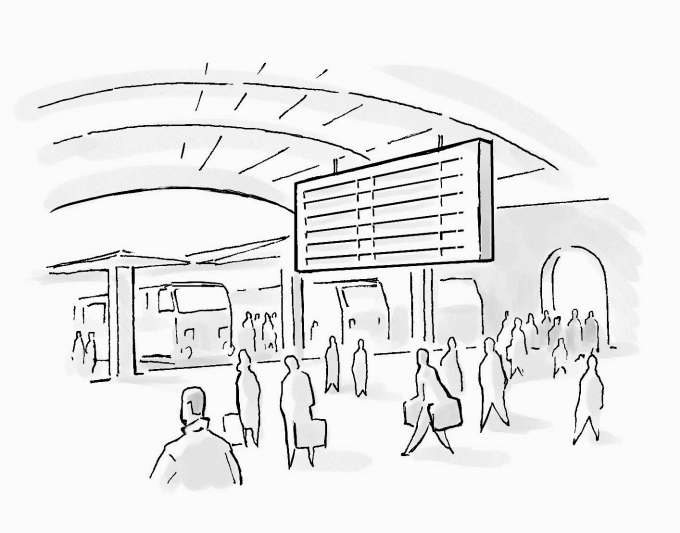
TECHNICAL FEASIBILITY:
In certain cities (e.g. Turin) a tracking system for all the transport vehicles is already in place. The vehicles are equipped with GPS systems that report their actual location to the traffic central. There they are able to predict time for the rest of the vehicles route. In some cases this data is already displayed at the bus-stops or underground stations. A plug-in is needed to route this information to the Fluidtime server and to make it available through the service.

ESTIMATES AND FACTS:

Availability of prototypes:	short term
Usage:	Daily
Time amount:	Minutes
Public transport passengers in 1998	
Turin:	167 million
Rome :	815 million
Milan :	530 million
Total Italian city passengers:	2,440 million
Total Italian commuting passengers:	840 million

Source: City Transport Turin, Ministry of Transport, Rome

Trains



SO FAR:
People who are commuting every day know the train schedule quite well. What they don't know is if their train will be on time everyday or not: they happen to be in a rush to be at stations in time to then wait until their delayed train arrives or leaves. It is in the nature of complex processes that they can't be completely predicted.

FIRST STEPS:
We are not aware of any WAP or SMS implementations to train services as yet.

FLUIDTIME:
FT can give up to date time information that might give the commuters time to do certain things on the way to the train station, or even leave the house a bit later. If a heavy delay occurs, the commuter has a chance to inform the office in advance.

BENEFITS:
Provider: people are more motivated to take trains -> increase of Passengers who are also less frustrated
Subscriber: Passengers don't have to wait on the platform until train arrives, less stressed by knowing the real-time schedule

TECHNICAL FEASIBILITY:
As for the public transportation sector of cities, real time data about the location and speed of the trains are already available to train companies. The data simply need to be given the implementation that FT offers.

ESTIMATES AND FACTS:

Availability of prototypes:	medium term
Usage:	daily - yearly
Time amount:	minutes - hours

Italian railway passengers in 2000

State-owned railways:	490 MILLION
Private companies railways	150 MILLION

Source: Italian Railways, Rome
Institute for Transportation ISFORT, Rome

Airports and Airplanes

SO FAR:
Bad weather and congestions are common in airports as well as crowds of stuck passengers. Inside duty free zones, passengers must constantly walk over to the displays to find out about their gate and boarding time.

FIRST STEPS:
Oslo airport have started up a service that allows travellers to connect via Internet or SMS to the Airport Information data to monitor schedule changes.

FLUIDTIME:
Fluidtime can take the information and make it available wirelessly. A set alarm could remind the traveller that real-time boarding has started.
Duty-free shopping or picking up people at airports can be turned into a virtually stress-free experience.

BENEFITS:
Provider: people will enjoy a better travel experience and service
Subscriber: Passengers can stroll around airport without constantly searching for monitors to show latest updates.

TECHNICAL FEASIBILITY:
Real-time updated information on arrivals and departures already exists at most airports. Some of them make it already available via WAP and SMS. FT is only a useful and efficient implementation of these existing data.

ESTIMATES AND FACTS:

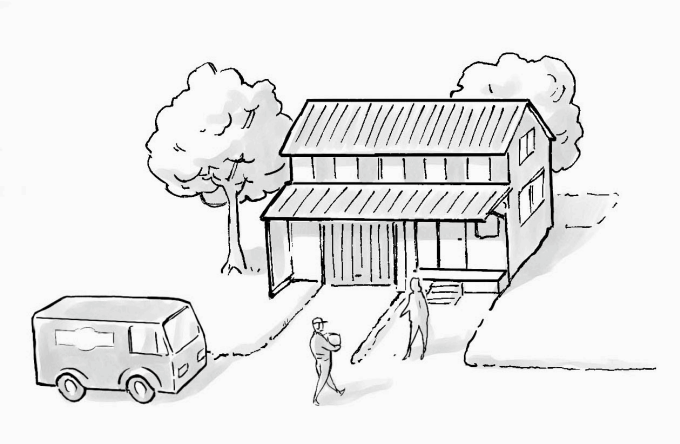
Availability of prototypes:	short term
Usage:	daily-yearly
Time amount:	minutes-hours

Italian airline passengers in 1999

Turin airport:	9 MILLION
Malpensa airport:	20 MILLION

Source: airport websites

Express Couriers



SO FAR:
Once the courier has left the warehouse on his way along the daily route, his company's tracking system stops. This last bit of travel information is the most important for people who have to wait for the package to arrive.

FIRST STEPS:
"General Parcel" has adopted a wap site to allow their customers to track their parcel always.

FLUIDTIME:
Fluidtime can take the tracking information and make it available wirelessly. Expecting a parcel doesn't force customers to sit at home or at work waiting anymore.

BENEFITS:
Providers: reduced chance that customers are not there, service advantage and efficiency increased
Subscribers: courier arrival time available, freedom to plan waiting time.

TECHNICAL FEASIBILITY:
Most companies use advanced tracking systems for the parcels.
Some fleet logistic software systems do start to incorporate this information as well. FT maximizes this information service and delivers it to the very last minute.

ESTIMATES AND FACTS:

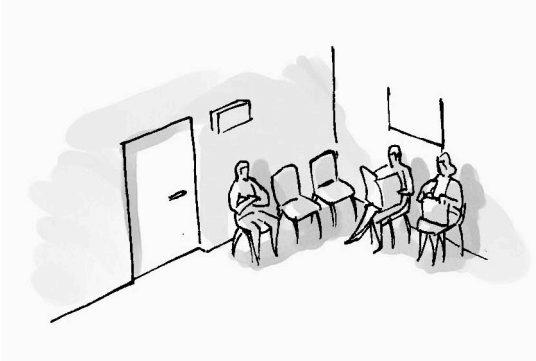
Availability of prototypes:	medium term
Usage:	weekly-seldom
Time amount:	minutes-hours

Deliveries by express couriers in 1999 in Italy

TNT :	30 million
Bertolini :	25 million
DHL :	45 million
UPS :	15 million

Source: TNT and estimates

Doctors and Hospitals



SO FAR:
Doctors can't predict how long visits take, and patients are forced to wait with no update.

FIRST STEPS:
Although computer based patient-planning systems have reduced the time people have to wait for their appointments in waiting rooms, delays still occur.

FLUIDTIME:
Fluidtime can take the real time data and allow users to access it wirelessly. Patients don't have to sit in waiting rooms for hours to see their doctor. Hence medical centres and hospitals can only benefit from a better atmosphere, where doctors and patients are less frustrated and stressed.

BENEFITS:
Providers: Less people in the waiting room, less stress among people
Subscribers: A real-time updating system could allow the patient to either enter the hospital as late as possible, or to wait in the café and read a newspaper in a more pleasant atmosphere.

TECHNICAL FEASIBILITY:
Many hospitals with outpatient clinics use computer systems for the patient administration already. Some of the newer systems do have quite flexible patient scheduling systems that update the database in real-time.

ESTIMATES AND FACTS:

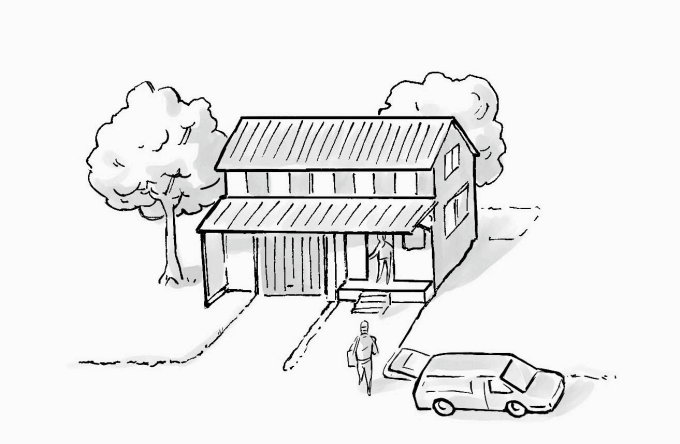
Availability of prototypes:	medium term
Usage:	weekly-seldom
Time amount:	minutes-hours

Treatments through the "Infermeria" service in hospitals in 1999:

"Le Molinette" Turin hospital:	3 million
All Turin hospitals:	9 million
In Piedmont:	26 million

Source: "Le Molinette"
Piedmont Region, Health Council

Customer Service Companies



SO FAR:
An appointment with a home service repair company can never be absolutely accurate and is usually set in a timeframe of several hours. Since the schedule of the repairman changes constantly due to external circumstances (traffic jams, unforeseen delays in fixing other customers' appliances), customers have to wait at home, because the repairman can't or won't say exactly when he will arrive.

FIRST STEPS:
None to our knowledge

FLUIDTIME:
When a Customer makes an appointment with the repair-company to get his boiler fixed, he receives an appointment date and time plus a special number (FT number) that allows him to connect to the company's Fluidtime service in order to receive a constant update of the estimated arrival time. Repairman and customer meet with no prior counterproductive waits.

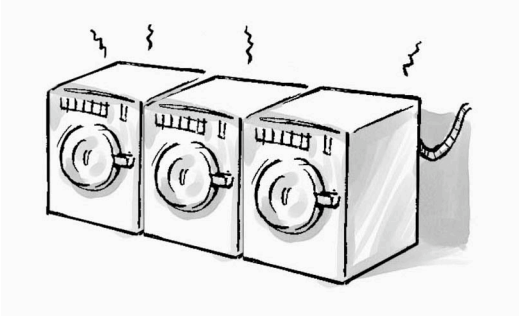
BENEFITS:
Providers: service advantage, reduced chance that people are not at their house.
Subscribers: arrival time of repairman available, freedom of movement during waiting time.

TECHNICAL FEASIBILITY:
Some companies started to use wireless scheduling systems for their workers to use in the field. The system can determine whether the worker is on schedule or not, so that he can rearrange the tour if necessary.
Real-time data is there in most cases – how can it be made available to the customers.

ESTIMATES AND FACTS:

Availability of prototypes:	medium-long term
Usage:	monthly-seldom
Time amount:	hours

Appliances time (Example: Washing Machine)



SO FAR:
When is the wash finished? Are the clothes left damp too long? Is someone else going to need the washing machine and I don't have the time to go checking if my washing is done? Can I manage to load another washing without checking several times if the first one is finished?
Appliances like washing machines complicate our daily life as we must follow their processes personally.

FIRST STEPS:
Margherita, a washing machine model produced by Candy, comes in a version which connects to Internet: the owner can send it short messages to operate it from anywhere.

FLUIDTIME:
Fluidtime can update the person constantly and he/she could go to collect the wash immediately after it is finished.

BENEFITS:
Provider: product advantage
Subscriber: People won't have to walk to the washing machine, just to see if it is already finished. Especially if the washing machine is far away as is the case with shared washing machines in apartment buildings, it can make everyday life much easier.

TECHNICAL FEASIBILITY:
First washing machines with Internet connection are available on the market. Some of them do make their status of washing available through an Internet website.

ESTIMATES AND FACTS:

Availability of prototypes:	medium-long term
Usage:	daily-monthly
Time amount:	minutes

Queue based Fluidtime services (Availability of Products and Services)

Passport Offices

SO FAR:
Certain governmental offices and embassies use a numbering system in order to structure the waiting process for their customers. Once the people have received their waiting number, they have to stay in the waiting area sometimes for hours to wait for their number to be called.

FIRST STEPS:
None to our knowledge

FLUIDTIME:
A Fluidtime service would allow people to leave the place and keep them updated through its wireless service. The atmosphere for employees working in the offices becomes less tensed, and customers are simply less frustrated.

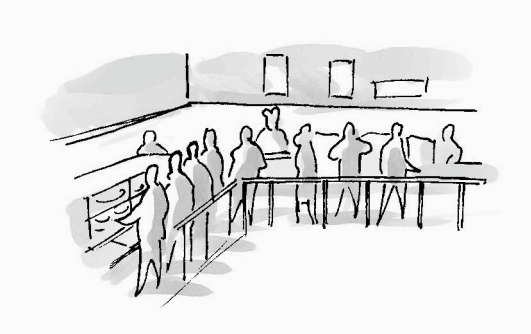
BENEFITS:
Providers: Efficiency increased, atmosphere improved
Subscribers: People can sit in the park or a café and wait for the number to be coming up.

TECHNICAL FEASIBILITY:
Number based queuing systems have been available for some time. People have to show up at a place, pull a number, sit down, and wait. An electronic display on the wall usually shows the status of the queue. Connecting this device to the net would allow the user to receive the information anywhere he wants.

ESTIMATES AND FACTS:

Availability of prototypes:	medium term
Usage:	monthly-seldom
Time amount:	minutes-hours

Queues in every day life (Banks, Shops, Canteens, etc.)



SO FAR:
Queuing is one of the worst experiences when shopping. Several people don't even enter the stores rather than queuing.
Even eating in a canteen can become very frustrating.

FIRST STEPS:
None to our knowledge

FLUIDTIME:
Fluidtime is like looking through the shop window to see how many people are inside. If the queues are short or finished, people might chose to pop in the stores for a quick buy.

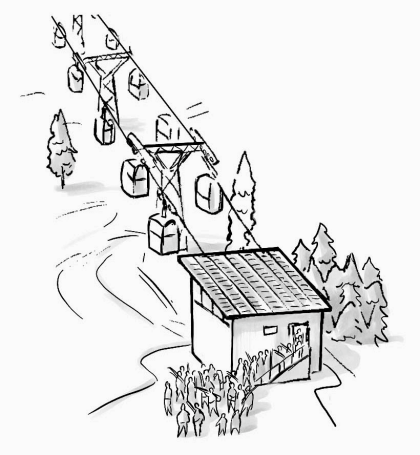
BENEFITS:
Provider: good chance that queues don't grow too long, customers come in at different times when it's convenient to them
Subscriber: approximate length of queue available as element to take decisions for a more pleasant time in store or other public place

TECHNICAL FEASIBILITY:
This is probably the trickiest one, since it requires queue-measurement, and there is no such thing as a queue-measuring device yet. Nevertheless the problem area of these issues is clearly defined, and solutions can be found without any doubt.
For example, Fluidtime can inform subscribers about queue lengths through sensors on the floor.

ESTIMATES AND FACTS:

Availability of prototypes:	long term
Usage:	daily-monthly
Time amount:	minutes

Queues in Skiing areas, amusement Parks and other Tourist attractions



SO FAR:
Skiing facilities, amusement parks and other tourist areas, are often faced with the problems of long queues, especially at times of first lift or last lift up.

FIRST STEPS:
None to our knowledge

FLUIDTIME:
Fluidtime can update the people constantly on queue length for each lift or attraction. People can spend waiting time elsewhere, in the warmth, or enjoying a more pleasurable time.

BENEFITS:
Provider: better distribution of skiers, avoided concentration at peak times.
Subscriber: more relaxed planning of the day's activities

TECHNICAL FEASIBILITY:
See before

ESTIMATES AND FACTS:

Availability of prototypes:	medium term
Usage:	weekly-seldom
Time amount:	minutes
Skiers in the season 1999/2000	
In the whole of Italy:	3.628 MILLION

sources: Sociometrica Research Rome,
the Verkehrsamt Kurverwaltung Bozen, the LUISS, University for Economic studies in Rome

Shared appliances (Example: Copy machines)

SO FAR:
In many companies most of the shared machines like copiers and printers are connected to the intranet, thus allowing for instance that documents to be printed through the network.

FIRST STEPS:
The next step is to let people know about the status of the machines.

FLUIDTIME:
Fluidtime takes the machine status-information and makes it available to employees using it.
Seeing if the copier is being used or not avoids useless walks to it, leaving freedom to do other tasks and of course even to walk up to machine's other user for a chat.

BENEFITS:
Provider: better service to the users, product advantage
Subscriber: choice to avoid waiting if wanted

TECHNICAL FEASIBILITY:
As soon as an appliance is networked the status information of it (copy card is inserted or not) can be made accessible through the network.

ESTIMATES AND FACTS:

Availability of prototypes:	medium term
Usage:	daily
Time amount:	minutes