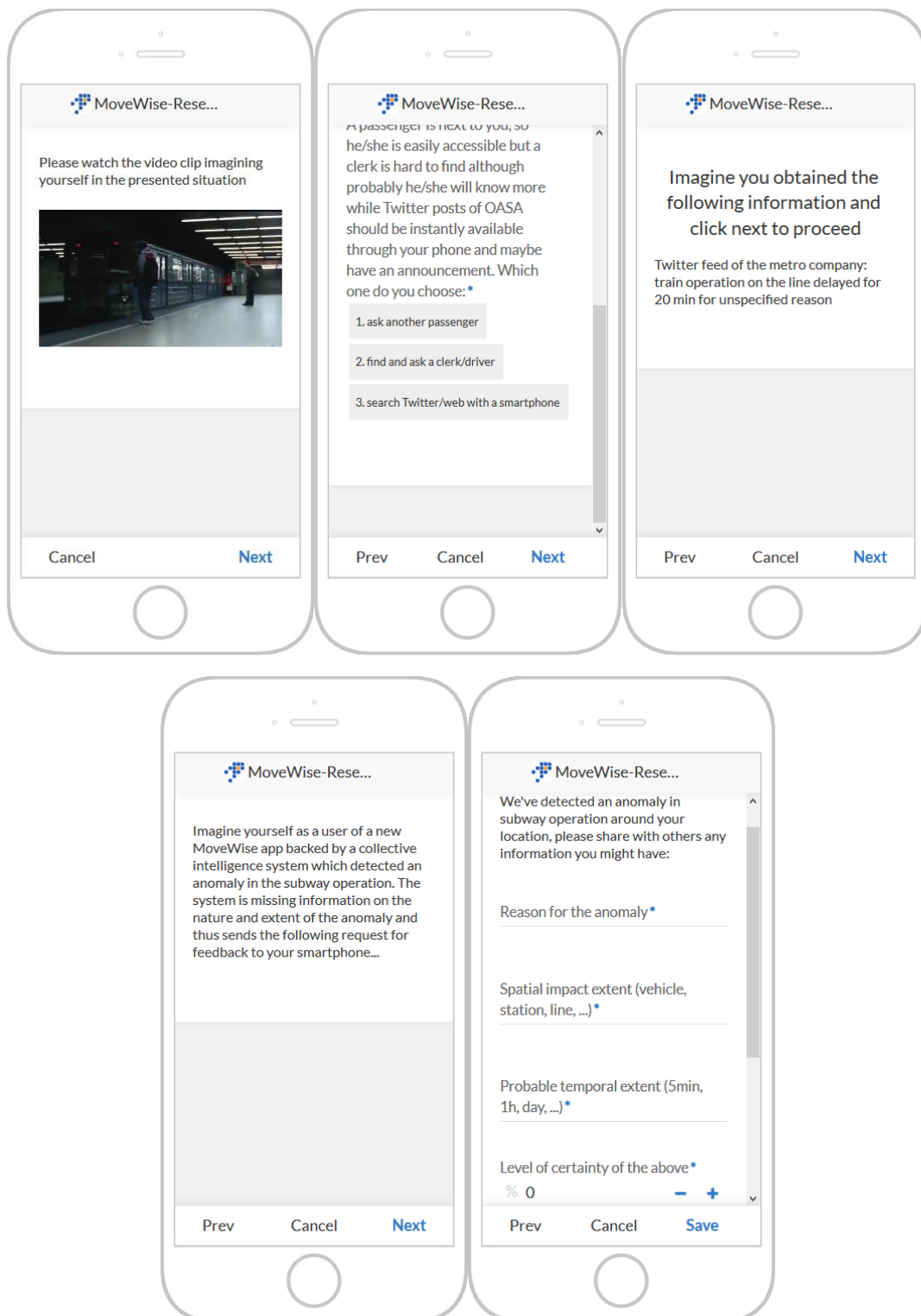


Background

This deliverable documents a survey executed among users of Athens Metro System. It is aimed at researching interaction with a “prototype” of a MoveWise application. Further background has been given in section 4.2 of the mid-term report submitted as deliverable D2.1.

Data Collection Procedure

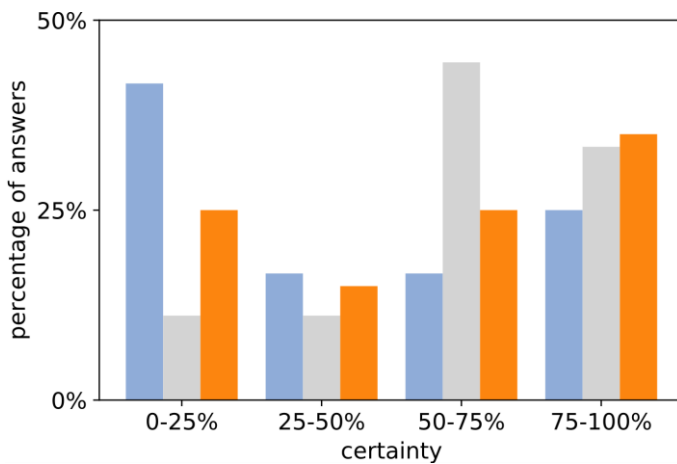
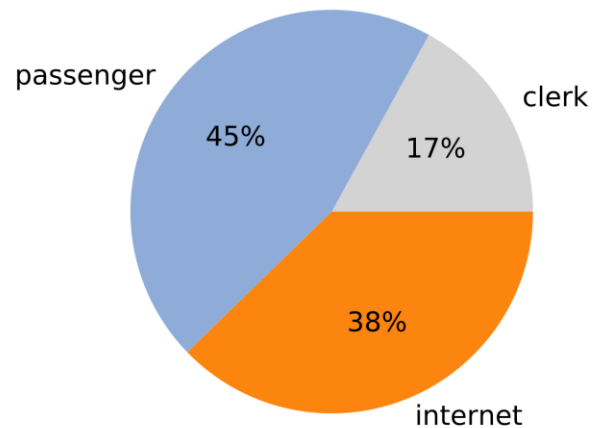
The survey was implemented as a smartphone web application using the AppSheet platform (<http://appsheet.com/>). The images below depict the survey workflow:



Survey Results

Throughout the month-long initial period of data collection, the survey gathered over 50 valid replies.

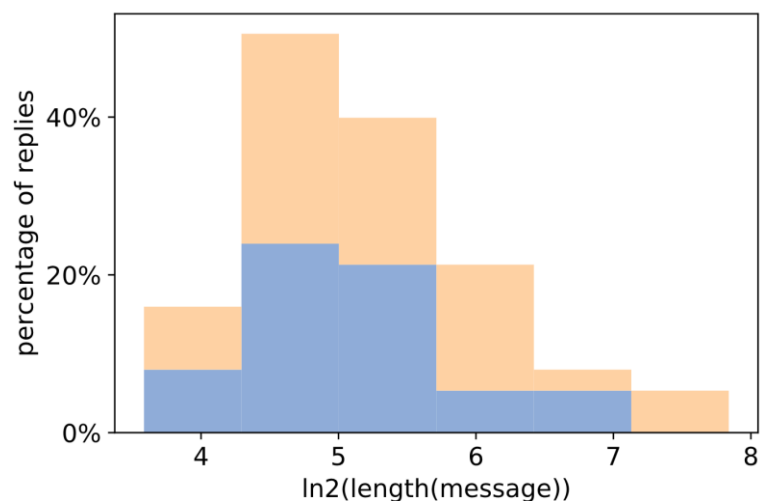
Within the survey, the respondents were presented with a video depicting an unusual situation on a subway station. Subsequently, the respondents were asked to pick one among three options for seeking further information on the incident: ask another passenger, find and ask a clerk, search the Internet. The pie-chart to the right, depicts that asking another passenger was the most frequently chosen option. At the same time, searching on internet was selected over twice as frequently as finding and asking a clerk, which was the least common answer.



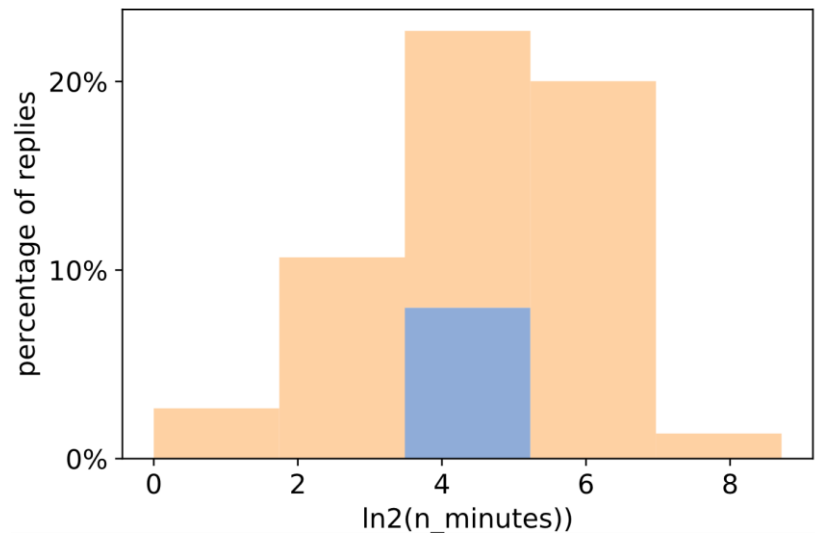
Within the survey, the respondents were subsequently provided with a hypothetical answer obtained from the chosen source of information and asked to imagine themselves being asked to relay this information through a hypothetical smartphone application. The application asked for a brief comment describing the event, estimation of the spatial and temporal extent of the service disruption, and the level of certainty characterizing the available information (see histogram

figure to the left with color coding consistent with the pie chart above). Among the replies that characterized the available information as least certain (below 25% of certainty), the most frequent way of obtaining information was asking another passenger. On the contrary, among the replies that characterized the information as of highest certainty (above 75% of certainty), the most frequent source of information was the Internet, slightly surpassing clerks which the respondents more frequently characterized with certainty in the 50%-75% range.

The comments relayed by the respondents were analyzed in terms of their length. The histogram on the right depicts a roughly log-normal-like profile with the frequency of replies peaking around 2^5 (i.e., 32 characters) when plotted as function of the base-2 logarithm of the length of a comment. This observation holds for both the case of low certainty (below 50%, plotted with pale orange) as well as high certainty (above 50%, plotted with pale blue).



Consistency in the content of the replies is depicted in the figure to the right which presents the larger spread of the reported temporal extent of the disruption (in minutes) given for high-certainty replies (above 80%, pale blue) as compared to all other replies (pale orange). It should be stated that the users that selected to obtain information from the internet, found out in the operator's Twitter page that the projected delay is 20min which is the basis of the plot. The graph shows that users with low certainty about the information they have, responded longer times than the actual temporal extent (high certainty replies – blue color – correspond to approximately 20min).



Conclusions

The envisaged MoveWise system can be thought of as a channel for relaying information between passengers through Internet. The survey results support the aim of targeting passengers that tend to seek information from other users of public transport. Noteworthy, even though the survey was executed among active users of Internet and social media, still almost half (45%) of the respondents imagined seeking information from other passengers, even though the perceived certainty of this information source is lowest. This suggests, there is an opportunity for increasing the user base of the system through advertising it as a “social” channel.

The high level of trust the respondents assigned to information obtained from the Internet (notably, higher than the one obtained from clerks), also provides valuable insight and confirms the rationale of the proposed solution.

The observed mean length of the message (of a few words) is consistent among low-certainty and high-certainty replies, which provides guidance for the design of the feedback form.

The consistency of the spread of the reported values with the stated level of certainty supports the idea of including the level of certainty as one of the fields in a feedback within the MoveWise application. This shall help in developing mechanisms for filtering outliers and data of low certainty, in particular given that the survey results suggest that the length of provided comments does not clearly correlate with the level of certainty.

Planned second stage of the survey

With the aim of further researching the feasibility of the MoveWise idea, and its reception by users of public transport in Athens, a second stage of the survey is planned. It is already technically ready for execution, although awaits finalization of the smart-card systems deployment in Athens subway, which shall provide essential context data for corroborating the survey results with objective data.

The second stage is implemented using the same AppSheet platform, and hence is presented to the user as a smartphone-aimed web application. The following screenshots depict the survey workflow:

