



Kofinanziert von der
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Baden-Württemberg



regioKargoTramTrain

Short Project Introduction



regioKargo

In the last few years, the proportion of products purchased online has grown significantly and, according to current studies, this proportion will continue to grow in the coming years.



As a result of online commerce, goods are no longer collected from the shop by the customers themselves, but **have to be delivered** to the customers via distribution centers with the help of service providers like DHL, DPD, UPS, HERMES, or Amazon itself.



This increase in deliveries causes an increase in traffic on the roads and leads to problems, especially in narrow streets in the city centers. One problem is that due to the large number of service providers, there are often several vans on the roads at the same time, conflicting with political goals to reduce traffic on the roads as well as to reduce CO2 emissions.



The federal state of Baden-Württemberg wants to double the share of public transport by 2030 compared to 2010 and reduce motor vehicle traffic by 20 percent. The areas which become available should then be given to the local population.



Another goal of the state of Baden-Württemberg is that every second ton should be transported in a climate neutral way by 2030. Replacing conventional vans with electric ones will aid in achieving this goal but can not reduce traffic and therefore not clear up space for public use.



During off-peak hours a lot of space is left unused in the multi function areas of trams. This space could be used for transporting goods without occupying additional space in the city.



By using free capacities in TramTrains, goods can be transported directly from small towns in the vicinity of Karlsruhe into the city center without a need for a change of trains. Transporting passengers and goods at the same time increases economic viability.



Transporting goods as well as passengers at the same time comes with a unique set of challenges. The goods have to be well secured. LogIKTram has found a good solution for this by attaching a horizontal bar beneath the folding seats in the TramTrains to which the delivery robots or cargo bike trailers can hook into.



These folding seats are located in the multifunctional areas of the trams, intended for wheelchair users in particular. Political goals of barrier-free accessibility in public transport requires trams to provide a certain number of wheelchair places.



In addition to serving as an area for wheelchairs, multifunctional areas within the trams also serve people with pushchairs, luggage or similar transport objects. It is therefore important that these areas are prioritized for passengers if goods are to be transported in the TramTrains.



A lot of people are getting on and off the trains, especially in the city center. This process is usually completed in 20 to 40 seconds. Loading the cargo bike trailer or delivery robot should not take any longer than that.



Because of these potential conflict situations, we need a social and political discourse. Conducting extensive acceptance surveys in the URBANE and regioKargoTramTrain projects is essential for the success of the project. The goal is to find technical and process-related solutions to avoid potential conflicts.



By actively involving passengers and the general population, acceptance for the new system can be achieved. The regioKArgoTramTrain project includes a dedicated work package that uses this participation to derive and develop human-machine interfaces in order to avoid conflicts as far as possible.



Access to reliable information about the transport of goods at an early stage is crucial for encouraging acceptance. This can be achieved by incorporating a wide range of communication and booking channels.

For instance, indicating which multifunctional area the cargo bike trailer or delivery robot is using can prompt passengers to utilize other available multifunctional areas.



This requires automation as well as an information, communication and technology platform to enable data exchange between all stakeholders involved and to inform customers, passengers as well as the service providers and parcel recipients. LogIKTram has developed a suitable ICT-Platform which will be further developed by regioKArgoTramTrain.



Many regulatory challenges must be solved, particularly in the regioKArgoTramTrain project, so that the combined transport of passengers and goods can be demonstrated in 2027. The authorization of the vehicle and the approval of the goods transport are particularly important.



Finding areas for temporary storage of the cargo bike trailer or delivery robot can be a significant challenge, especially in urban environments. The presence of many people around stops during loading and unloading makes the human-machine interface crucial. This means that technically (and also legally) it would be easier to offer a dedicated cargo tram.



However by combining passenger and goods transport, existing resources can be used more efficiently and costs can be reduced, which is why this approach is favorable.



In order to solve the mentioned challenges, a lot of research and development is needed. The overall regioKArgo initiative therefore consists of the three projects logIKTram, URBANE and regioKArgoTramTrain, which are designed to build upon and complement each other.



By complementing each other, the experience gained from the previous projects can be taken into account in the follow-up project.
The result is an active transfer of knowledge and lessons learnt which can be applied directly.

REGULATIONS



In this way, good technical and process related solution for the combined transport of passengers and goods can be developed.

In addition to that, legal requirements have to be encouraged politically, that enable the use of the proposed solutions from the courier, express and parcel sector to use them.