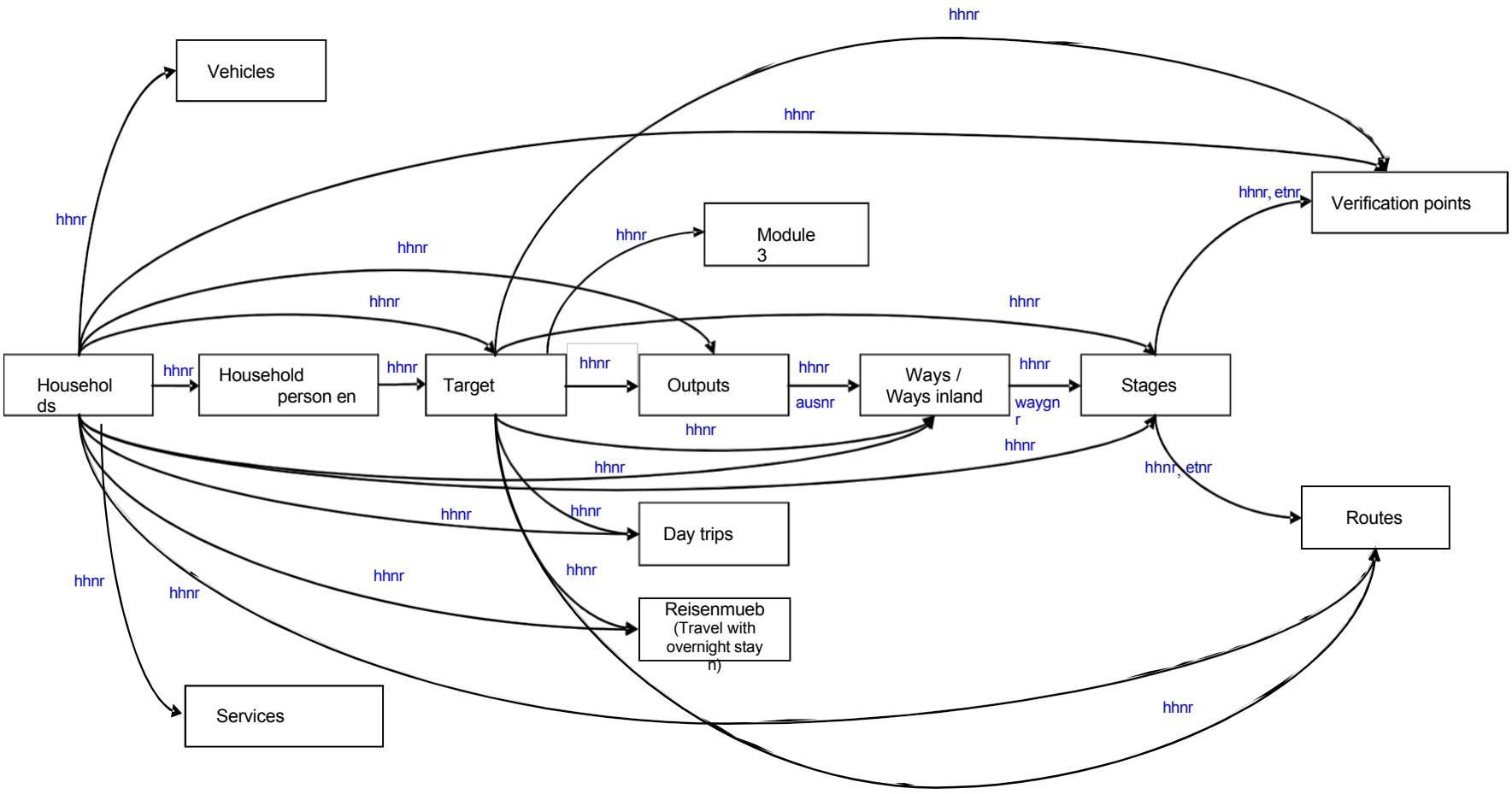
Database structure of the Microcensus Mobility and Transport 2021 (with geocoding and routing data).



The data set of the MZMV2021 is composed of 13 files, which are linked to each other via key variables. The figure above shows the hierarchical data structure.

Households: The top level of the data structure is formed by households. The households file contains information relating to an entire household, e.g. number of persons in the household, number of vehicles or geographical location. Each household is assigned a unique identification number (hhnr).

Household persons: Information on the persons in the household (e.g. age, gender, driver's license ownership) is recorded in a separate file. Each household person can be uniquely assigned to a household via the household number (hhnr). The household persons are uniquely identifiable by the combination of household number and household person number (hhnr + hpnr).

Target persons: Each household is assigned a target person who is asked about his or her mobility (key date mobility and additional modules). The target person file contains information related to the target person, such as marital status, labor market status, ownership of public transportation subscriptions, etc. Each target person is uniquely assigned to his or her household via an identification variable (hhnr). Via this variable hhnr and the variable from the household persons file, a unique assignment to a household person is possible hpnr (the target person is always the household person with hpnr=1) .

Vehicles: The vehicles file contains questions about all cars (vehicle type=1) and motorcycles (vehicle type=2) in a household, e.g. year of entry into circulation, engine capacity, speedometer reading etc. Each vehicle is assigned a unique identification number (hhnr + fznum). If a household has several cars (or motorcycles), they are numbered consecutively in the variable fznum. The cars and motorcycles can be clearly assigned to a household via the household number (hhnr).

Exits: An exit is a route or a chain of routes that begins at the target person's place of residence and ends there again. By analyzing exits, among other things, insights into the combination of means of transport (multimodality) and transport purposes can be gained. Each exit has a unique identification number (hhnr + ausnr).

Paths: Each mobile target person covers one or more paths on a key date. The routes are assigned to a mobile target person on the reference date (via hhnr). The file contains information related to entire trips, e.g. purpose of the trip, main mode of transport, start and arrival time. The file Paths contains all journeys made on the reference date, including journeys made abroad. The trips can be uniquely identified by an identification number (hhnr + wegnr) and thus assigned to the household and the target person. The variable ausnr contains the information to which output the corresponding route belongs.

WegeInland: The WegeInland file contains the same information as the Wege file, but only domestic routes are included here. For cross-border paths, only the portion of the path in Switzerland was listed.

Stages: A stage is the part of a route that is covered by one and the same means of transport. Stages, as a sublevel of routes, are the smallest recording unit. Each stage has a unique identification number (hhnr + etnr). Since in MZMV 2021 the route choice is recorded geographically, the stage data set contains various route information for each stage. For public transport stages, additional information about the course is included (HAF_FID), which allows conclusions about stop, train type and departure times. The variable "wegnr" contains the information to which route the corresponding stage belongs.

Routes: Each target person covers a route with a specific means of transport between the start and destination points of a stage. If a stage could be routed successfully, the route data set contains the geometry data in the file format of an ESRI shapefile. For MIV and road-bound public transport, the routes are based on the road network of the TomTom company. For rail-bound public transport and cycling, the routing was based on the corresponding networks of the transport model of the UVEK (VM-UVEK). The assignment of the routes to stages is done via HHNR and ETNR. (Note: Unlike stages, routes with border crossing are not separated at the border. As a result, stages with border crossing are assigned the entire route in each case).

Verification Points: As part of the route verification of the MZMV 2021, verification points were requested on the route depending on the means of transport. The data set Verification Points contains the coordinates of these passed locations for each stage. In addition, the file contains the coordinates of the border crossing for stages crossing the border.

Day trips: Almost one third of the target persons are asked about their daily trips (number of daily trips, purpose of daily trips, choice of means of transport, etc.) in the additional module 1a "Daily trips". For each person, the number of daily trips is recorded in a reference period (14 days), with detailed information recorded for a maximum of three randomly selected daily trips. The daily trips are clearly identifiable via an identification number (hhnr + trenr) and can be clearly assigned to a target person via the household number (hhnr).

Reisenmueb: Additional module 1b "Trips with overnight stays," which is answered by about another third of the target persons, contains questions on travel behavior (purpose of trips, choice of means of transport, etc.). As with the daily trips, the number of trips with overnight stays is recorded in a reference period (here 4 months), with a maximum of three randomly selected trips per target person recorded in detail. Each trip is identified by a unique identification number (hhnr + renr) and can be clearly assigned to a target person via the household number (hhnr).

Services: The services dataset contains the distances from the target person's residence to the nearest service per category (e.g. restaurant, doctor, school, store, public transport stop, etc.). These distances come from the hectare resolution geospatial data on service accessibility published by FSO (more information is available in the document Accessibility.pdf). These distances complement the information on the place of residence of the target person, which can be found in the file households (unique identification via the variable hhnr). Attention: For evaluations on household level (e.g. comparison with the number of vehicles) the household weight WM must be used; for person evaluations (place of work, stages, etc.) the person weight WP must be used.

Module3: Almost 3,500 target persons are asked about their attitudes to transport policy in additional module 3. The respondents are presented with various measures and asked to rank them in order of importance. The answers can be identified by the household number

(hhnr) can be clearly assigned to a target person. With the help of the variable "version" and the assignment key (see SR_Zuordnungsschlüssel.xlsx), it can be traced which measures were available for selection and in which order.