Unlocking the potential of building stock data to stimulate the renovation market

In Europe, almost 40% of the building stock predates 1960 and was not built according to any energy efficiency plan. Therefore, an intelligent and 'deep' renovation of residential buildings (both of their envelope and installations) would enable considerable energy - and CO_2 emission reductions. However, the traditional and fragmented market and the lack of 'renovation packages' in Flanders, make it a challenge to meet European and national goals: the current renovation rate is only about 1% per year.

To meet the goal of carbon neutrality by 2050, the Flemish renovation rate should increase a lot. However, currently, one's interest to renovate fades quickly because of the required effort and lack of proper data on the current state and characteristics of the building to even start considering renovation of a house.

Typically, it requires much effort to get an idea of the current state of the building characteristics, or it is even impossible to find it. But even in the case that the data is available, it's time intensive to share it with contractors, renovation coaches or other parties that need these data to model the costs of the renovation. The same is true for cities for example, to be able monitor the effectiveness of their local incentives and regulation, they have to combine several different data sources. But even in this case, a uniform dashboard that gives insights in the energy profiles of the local buildings is currently lacking.

However, there exist already a lot of heterogeneous data sources concerning the buildings and their characteristics on both the local city - and regional level (Flanders) of public administration. Examples are: kadaster Map, EPC label, Solar Map, aerial and Lidar images, Although there have been some efforts to centralize all the different sources into a platform (https://woningpas.vlaanderen.be/), it currently is still very cumbersome to share that data with for instance renovation coaches or other third parties who could help in the renovation process. The assumption is that when all this energy and building envelope related data can be easily shared with different actors (if they have the user consent) a more dynamic system or market could be formed, in which several third-party (renovation) service providers could efficiently offer renovation services towards the clients. This new system could have large similarities to Atrias, which is a central clearinghouse for all the data of the smart energy meters.

The goal of this thesis is to research the idea/assumption that the renovation rate could be improved when the systems are in place to share the building stock data and energy consumption data in a proper manner. For sharing data between different actors, we want to look at Solid. Which is a model and system designed to share data while keeping full control over it (currently of much interest of Flanders).

To investigate this assumption, following research activities/questions should be tackled.:
- Analyze and categorize different sources of building stock and related data sources that are currently stored in many different data silos on both the city and regional level of public administration.
- Identify what of these data could be very interesting for different types of actors and why.
- Map the characteristics of these data sources on the Solid specification and propose a method to unlock the potential of these data.
- Identify what building blocks of Solid add most value to the overall new system/platform/method to share renovation related data with different types of actors.