

GPS RESEARCH

GPS technology

The use of the **GPS** technology has the objective of finding out **movement patterns** in the neighborhood.



why does movement matter?



We live in times of **great mobility** due to the need to **exchange** and **communicate**, the bigger size of urban agglomerations (network cities), but also due to the **availability** of transportation **infrastructures**.

Within this perspective, **movement** is considered always **good**, as it **enhances** the **economical** potential of a neighborhood, city or region.



sustainable development



less mobility



less energy



less pollution



functions

Since the last decades, the need to achieve more **sustainable** forms of **development** has brought the need to **diminish** the **daily mobility** in order to spend **less energy** and produce **less pollution**.

This necessity brings us the need to allocate a **diversity** of **functions** in the **neighborhoods** of a city.

sustainable development?



dangerous pedestrian



dangerous pedestrian

However, simply allocating functions in an area **doesn't guarantee** that people will **walk** to use those functions instead of **using the car** and do it somewhere else (a neighborhood that is highly unsafe can prevent people from walking, for instance).

GPS technology+interview



The use of the **GPS** technology, together with **interviews** with the people who will carry it, can help us understand **how people actually move** in an area,

This can be an important **tool** for **developing strategies** that reinforce clean forms of mobility (if the inhabitants are not passing by the local shops, because of feeling unsafe, this might lead to the bankruptcy of local firms and the use of the car to do shopping somewhere else. Or, if many citizens pass by a certain street this might be a place to allocate shops, for example).

GPS - assisted living



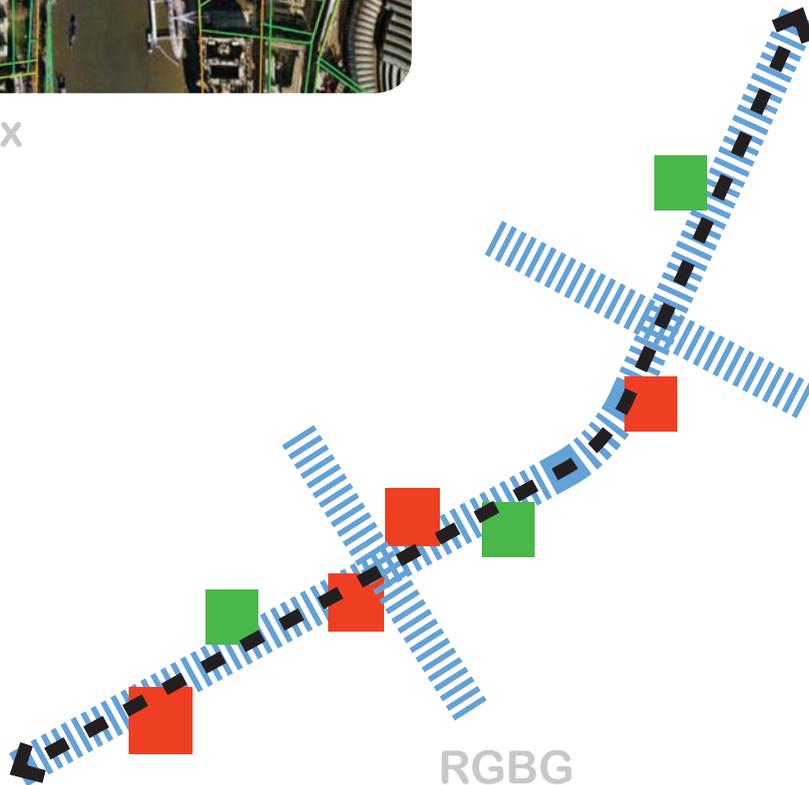
Specifically in relation to **assisted living** for the elderly, there is a need to **improve** the **accessibility** through the area, so that it's easy for them to move through and have a more **independent** and socially active life.

In this respect, it's important to analyze elderly people movement patterns in Oud-Charlois, so that we can find out **where** it's easy to **move**, **how** do they move, and **why**. This data can be used to develop more **efficient living environments** for this population.

other techniques



space syntax



Usually, in Urban Planning and Design projects, **other techniques** are used to speak about the **movement** in intervention areas.

However, we can say that **these techniques** are **speculations**, as they do not prove where, how and why people actually move. Planners influenced by the “New Urbanism”, for instance, adopts a 10 minutes radius from the center of the intervention area to demarcate the area that is within a walking distance from the center, where they place local shops and services.

This method is aimed at developing more **sustainable urban environments** that are **less** dependent on **car use**.

space syntax



Another method in use by scholars of Urbanism is the **Space Syntax**, developed by Professor **Bill Hillier** and his colleagues from the Bartlett Faculty of the Built Environment (University College London).

Their method is based on drawing a system of axial lines along the streets in order to map the urban environment and find out why certain areas were more vital and safe than others.

According to Bill Hillier whenever an area is **more than two street turns** from another (two steps analysis) it's **badly connected** and therefore its inhabitants will tend to use the **car** more often, making this area less lively or suitable for shops.

public transport availability



tram



bus

In general, the **availability of public transport** in an area is considered an **important asset** of a **neighborhood** and is taken as a necessity for more sustainable forms of developments.

The **public transportation system** is usually assumed to **connect a neighborhood** to the rest of the **city** and therefore assumed to be an essential feature for the **growth** of the urban environment.

GPS accuracy



However, with the **GPS technology** one can research if the people from a neighborhood are really **using the public transport system**, for what, and when and why the people are **walking** around the neighborhood.

This knowledge about the movement patterns of the inhabitants of an area is very useful in developing **more accurate regeneration plans**

GPS accuracy



Thus, the **GPS** can be a **technique** for **planning**, as it can verify certain assumptions and describe people's movement from one place/function to another.

While **New Urbanists** would trace a **five minutes** circle from the **local shops** and assume that the dwellings within this area are walking to do their daily shopping, the use of the **GPS** technique can, in this specific case, show us that these **people** are actually taking their **cars** to do shopping **somewhere else**.

In order to find this data one has to combine the GPD tracking with interviews.

GPS accuracy



In respect to the actual routes that people take in the neighborhood and also to go outside it's interesting to verify that **certain places** are being **avoided** while other **streets** are **more used**.

These facts could be accounted to bad **environmental conditions** (such as bad paving, public lighting, noise, unsafety, etc) and further research would be needed, in order to find out the reasons for these patterns.



GPS accuracy

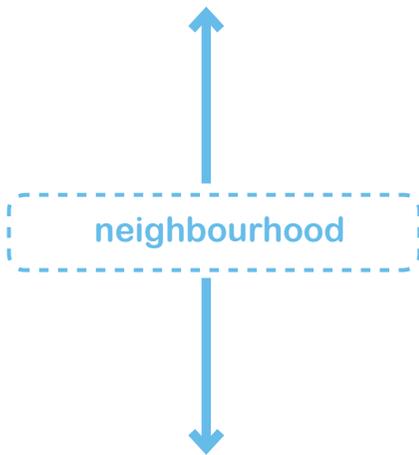
more than...



Here it's important to compare with the Space Syntax technique.

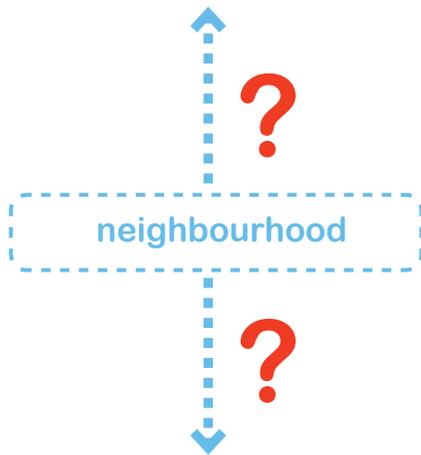
While in **Space Syntax** the configuration of streets (morphological approach) is understood as a **defining element** of the “**connectivity**” of an area, as it's believed to guide movement through space, we see that in fact the **reality** is much **more complex**: movement does not happen according to street patterns or district boundaries.

GPS accuracy



In a **traditional** approach to urban **sustainability** one would say that an area is suitable for development or densification whenever it's **connected** to the **public transportation system**.

GPS accuracy



However, the **GPS** technique can tell us if these **systems** are actually being **used** or **not** and how they are being used (for daily mobility, only in weekends, etc).

The **findings** of such a **research** can show us that it's needed to further the **analysis** with **inter-views** with the **local inhabitants** in order to verify the reasons for not using the public system, what other forms of mobility are in use, and what is **needed** to **enhance** the use of the **public system**.